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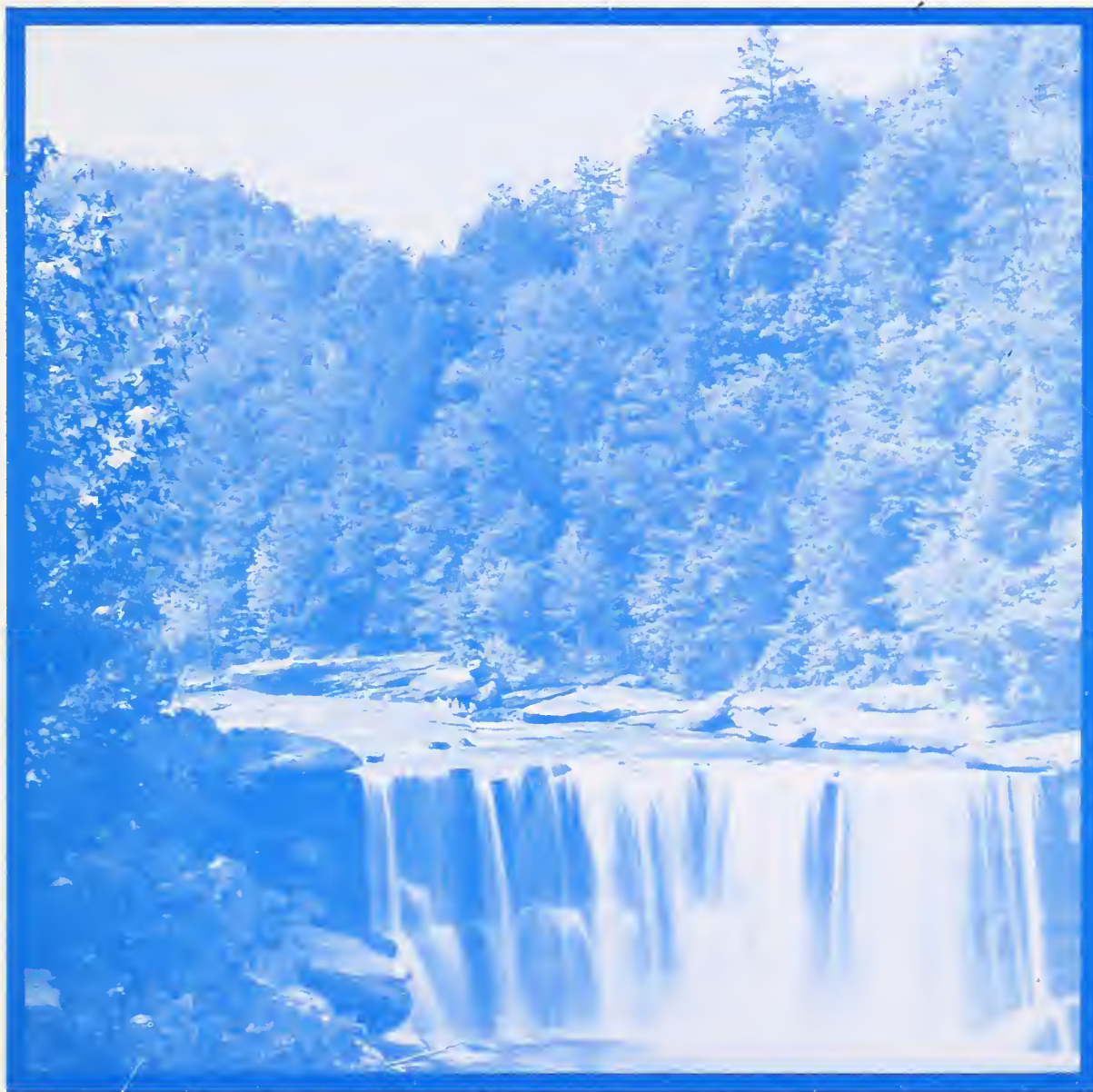
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KENTUCKY FORESTS

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Southern Cumberland Unit

#3

FOREWORD

More than a decade has elapsed since the last comprehensive inventory of Kentucky's woodlands. Timber cutting, tree growth, and shifts in land use since then have led to several important changes in the timber resource. The demand for forest products has also changed. So, there is an urgent need for new information. Recent emphasis on rural-area development has made the necessity for fresh statistics even more pressing. Local communities and forest-based industries are finding a greater need for up-to-date data as they plan for future economic development.

To meet these needs, the Division of Forestry of the Kentucky Department of Natural Resources and the U.S. Forest Service planned and conducted a new inventory of Kentucky forests. The field work was completed in 1964.

The McSweeney-McNary Forest Research Act of 1928 authorizes the Forest Service to complete a statewide forest inventory of Kentucky at approximate 10-year intervals. This is part of the nationwide program of maintaining a current account of our timber resources. The State of Kentucky appropriated \$120,000 for the current survey. This contribution, supplementing the Federal funds available for a regular survey, made it possible to intensify the inventory. As a result, we can provide the kind of detailed information needed for making long-range plans to meet future demands and in addition help local communities and forest-based industries make more efficient use of the forest resource.

The resurvey was conducted by the Lake States Forest Experiment Station and the Kentucky Division of Forestry. Clarence D. Chase, Leader of the Survey Project at the Lake States Forest Experiment Station, directed the work. Timber growth, cut, and inventory data were compiled by the Lake States Survey Unit. Scientists of the Central States Forest Experiment Station took part in planning the survey, training the field crews, and compiling and analyzing the data.

Personnel of the Eastern Region of the U.S. Forest Service inventoried and provided statistics for the Cumberland National Forest. The Northeastern Forest Experiment Station assisted with the computation of National Forest data. The Tennessee Valley Authority provided men and equipment to assist in surveying areas of their interest. The Soil Conservation Service and the Agricultural Stabilization and Conservation Service provided the field crews with office space and up-to-date aerial photography. The Kentucky Department of Highways took and provided aerial photographs for parts of eastern Kentucky where no recent photography was available. The University of Kentucky and Kentucky Department of Commerce took an active part in planning and gave valuable assistance with problems that evolved during the course of the inventory. Our thanks go to all these organizations and others who contributed.

For sampling and reporting purposes, the State was divided into seven survey units (frontispiece). This report covers the Southern Cumberland Unit. Additional information regarding the survey can be obtained from either the Division of Forestry, Kentucky Department of Natural Resources, or the Central States Forest Experiment Station.

Central States Forest Experiment Station, U.S. Dept. of Agriculture
Forest Service, 111 Old Federal Building, Columbus, Ohio
R. D. Lane, Director

KENTUCKY FORESTS

Southern Cumberland Unit

David A. Gansner

Clarence D. Chase

Prepared in cooperation with

Division of Forestry, Kentucky Department of Natural Resources

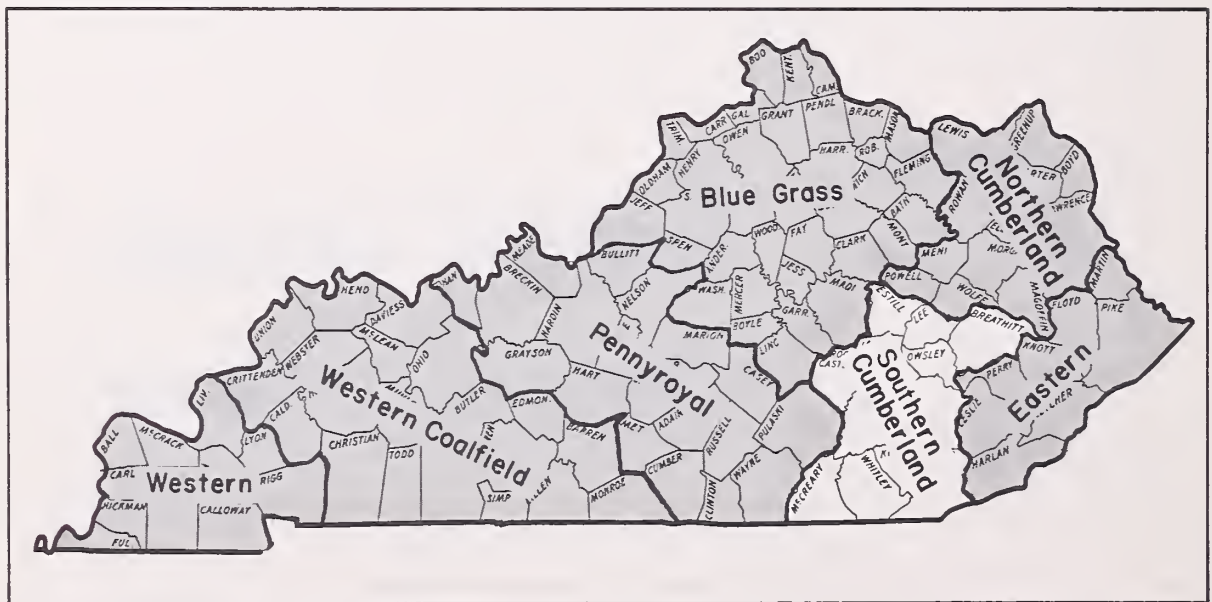
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Location of the Southern Cumberland Unit in Kentucky.

THE TIMBER RESOURCE HAS CHANGED

The Southern Cumberland Unit is a heavily forested, 12-county area located in Southeastern Kentucky. There are 2.2 million acres of forest in the Unit, 5 percent more than at the time of the last survey in 1949. Much of the gain in forest area can be attributed to a declining agriculture. U.S. Bureau of the Census data indicate a sharp decrease in both the number of farms and farm acreage in the region between 1949 and 1959. Many submarginal farms were abandoned and idle fields and pastures taken over by tree seedlings (fig. 1).

Less than 1 percent of the forest is classified noncommercial, i.e., either too poor for timber production or reserved from cutting. Commercial-forest land increased in nearly every county of the region (fig. 2). Today more than 79 percent of the land area is producing timber and the woodland is well distributed. No county is less than two-thirds forested. Hardwoods predominate on more than 90 percent of the forest area. The principal forest types are oak-hickory and central mixed hardwoods. About half the forest area is in sawtimber stands; most of the remainder is equally divided between the poletimber and seedling-sapling sizes. Less than 1 percent is nonstocked.

FIGURE 1. — Many abandoned fields and pastures have reverted to forest since the last survey.



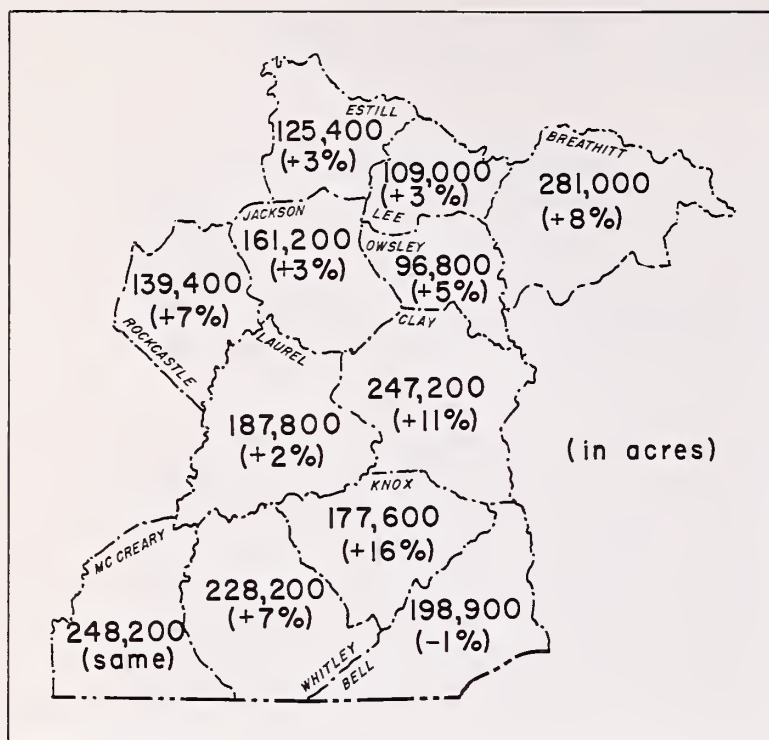


FIGURE 2. — Area of commercial-forest land by county, 1963, and percentage change since 1949.

FIGURE 3. — Change in volume of growing stock by diameter class, 1949-1963.

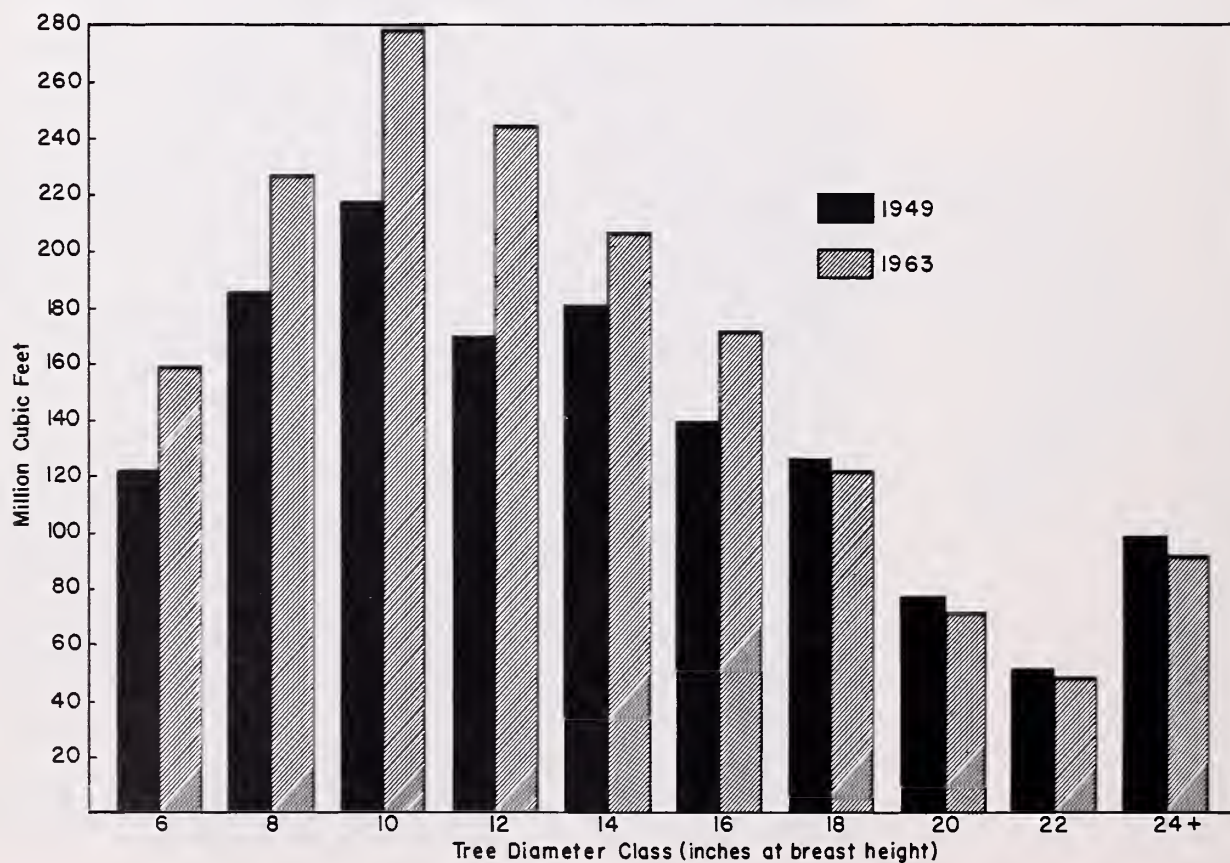


FIGURE 4. — *High-quality timber such as this is becoming scarce.*



The volume of merchantable timber also increased by about one-fifth to 1.6 billion cubic feet between inventories. This amounted to an average increase of more than 80 cubic feet per acre.¹ However, most of the increase was in small trees (fig. 3). The volume of large, high-quality timber, preferred by most of the local sawmills, cooperage mills, and other primary-wood-using industries, has declined. As a result, there has been a significant shift in the distribution of timber volume by size classes. In 1949, about 75 percent of the growing stock was in trees less than 17 inches d.b.h. Now 80 percent is in this size.

There has been a similar change in the size distribution of sawtimber. Sawtimber volume as a whole increased 4 percent between surveys. The volume of saw-log material in trees less than 17 inches d.b.h. increased 15 percent. But the volume in larger trees decreased 11 percent indicating there are fewer large, high-grade saw logs now than in 1949 (fig. 4).

However, the large increase in small, sound growing stock has increased the quality-growth potential of the timber base. Large numbers of poletimber trees are now reaching sawtimber size and about half of the present sawtimber volume is in trees less than 15 inches d.b.h. As these trees mature during the next few decades, there should be a healthy increase in large, high-quality saw logs.

¹The 1949 estimates of growing-stock volume are not directly comparable with those of 1963 because they did not include merchantable material in the upper-stem portion of hardwood sawtimber-size trees. The 1949 data had to be adjusted to permit comparisons.

The species composition of Southern Cumberland forests has also changed (figs. 5 and 6). Probably most startling is the large decrease in sawtimber volume of shortleaf pine, one of the region's most important timber species. The numbers of and volume in small shortleaf pine trees (less than 11 inches d.b.h.) increased greatly between surveys. But this increase was more than offset by cutting and mortality in larger timber. The end result was a 36-percent decline in sawtimber volume and a 2-percent decline in all shortleaf pine growing stock between surveys. The volume of other yellow pines (mainly Virginia and pitch) increased and these species now account for more than one-third of the region's softwood volume.

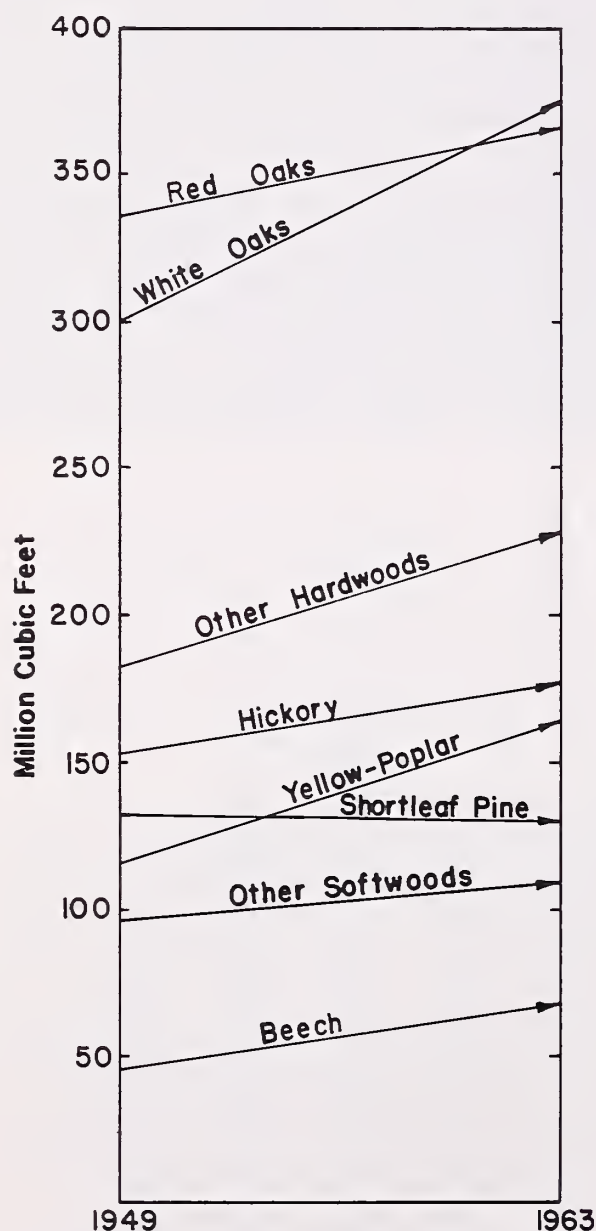


FIGURE 5. — Change in growing-stock volume by species groups, 1949-1963.

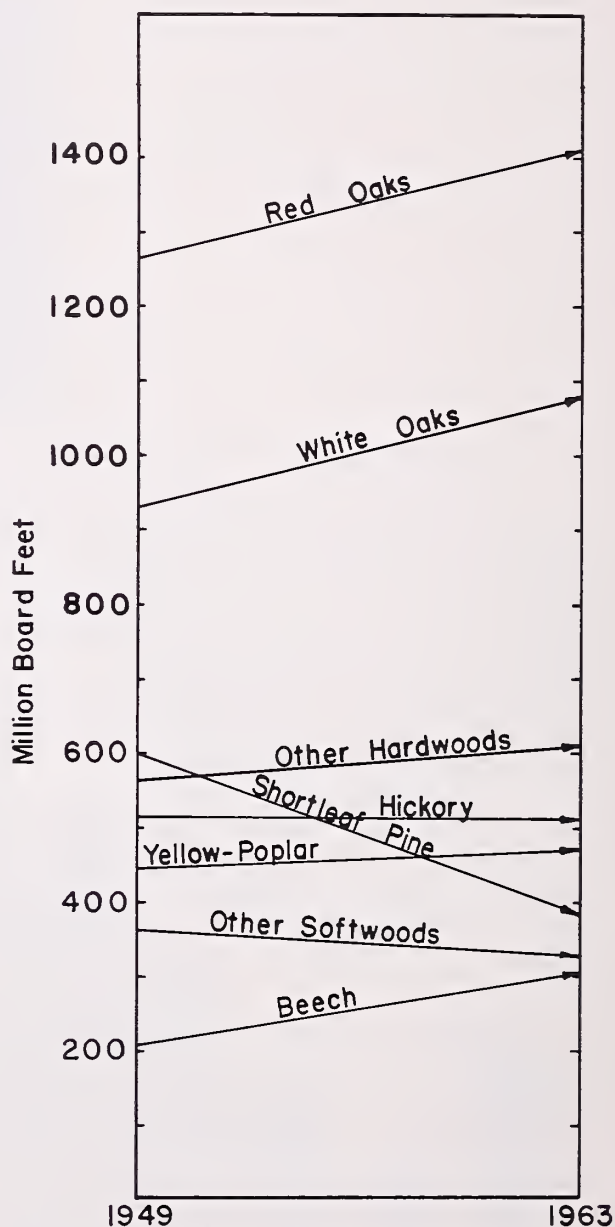


FIGURE 6. — Change in sawtimber volume by species groups, 1949-1963.

Most hardwood species showed large volume gains in small trees, but changes in large-hardwood volumes varied. The sawtimber volume of oak, yellow-poplar, beech, and maple (all heavily used species) increased. But the saw-log volume of some other important species, such as black walnut, basswood, and ash, declined sharply. Oak species now contain about half of the region's sawtimber volume.

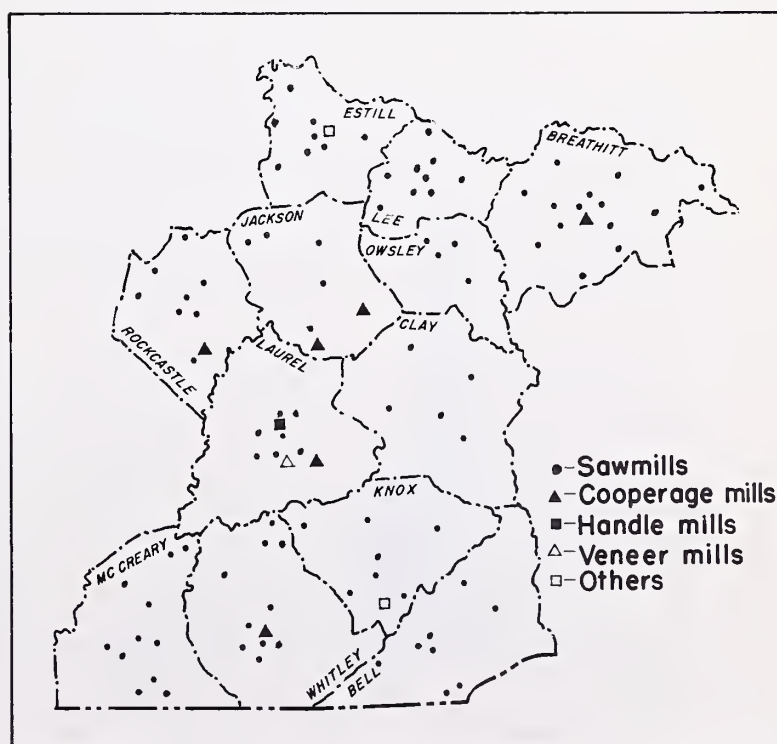
Just as important as knowing how much and what kind of timber we have, is knowing who owns it because ownership largely determines availability as well as protection and management of the resource. About four-fifths of the region's timber is in the hands of farmers, forest industries, and other private owners. Most of the remainder is on the Cumberland National Forest. Stocking is much greater on the National Forest than on other land. Even though the National Forest includes less than 14 percent of the commercial-forest land in the region, it contains more than 22 percent of the growing stock.

TIMBER INDUSTRIES AND DRAIN

Almost 17 million cubic feet of growing stock were cut from the Southern Cumberland Unit in 1962. This was 14 percent of the total cut in Kentucky during the year.

Some 100 primary-wood-using firms are located in the region (fig. 7). Most of them are sawmills and only a dozen or so produce more than a million board feet annually. In 1962 the region produced about 70 million board feet of lumber. Included among the Region's other primary-wood-using establishments are one veneer mill,

FIGURE 7.—Location of primary-wood-using industries, 1963.



four stave mills, and two handle plants. The wood used by these other plants represents a small drain on the timber resource. But they use high-quality logs and bolts of preferred species such as walnut, white oak, yellow-poplar, and ash. Supplies of this valuable timber are scarce.

Although the region has no pulp mills, the cut of pulpwood has been increasing in recent years. In 1964, a total of 74,000 tons of pulpwood was harvested from the Southern Cumberland Unit. Most of it was pine that was shipped to mills in southern states.

A lion's share of the cut in 1962 was from trees of sawtimber size. The harvest of sawtimber amounted to almost 91 million board feet — 40 percent of it oak. Following in order of importance were yellow-poplar, beech, shortleaf pine, and hickory. More than a third of the poletimber volume cut was shortleaf pine which was used mainly for pulpwood and fenceposts.

THE CURRENT BALANCE BETWEEN GROWTH AND CUT

In 1963, the net annual growth of growing stock in the Southern Cumberland Unit was 71 million cubic feet or 4.4 percent before allowances are made for cutting. This amounts to an average growth of 32 cubic feet per acre per year. Sawtimber volume was growing at a rate of 324 million board feet or 6.4 percent per year. The above volume-growth rates are well below the potential of the region's forests. Nine-tenths of the timberland has the capacity to produce in excess of 50 cubic feet per acre per year and more than half of it, the capacity to produce more than 85 cubic feet per acre per year (potential expressed in terms of mean annual growth at culmination of increment in fully stocked stands of desirable trees).

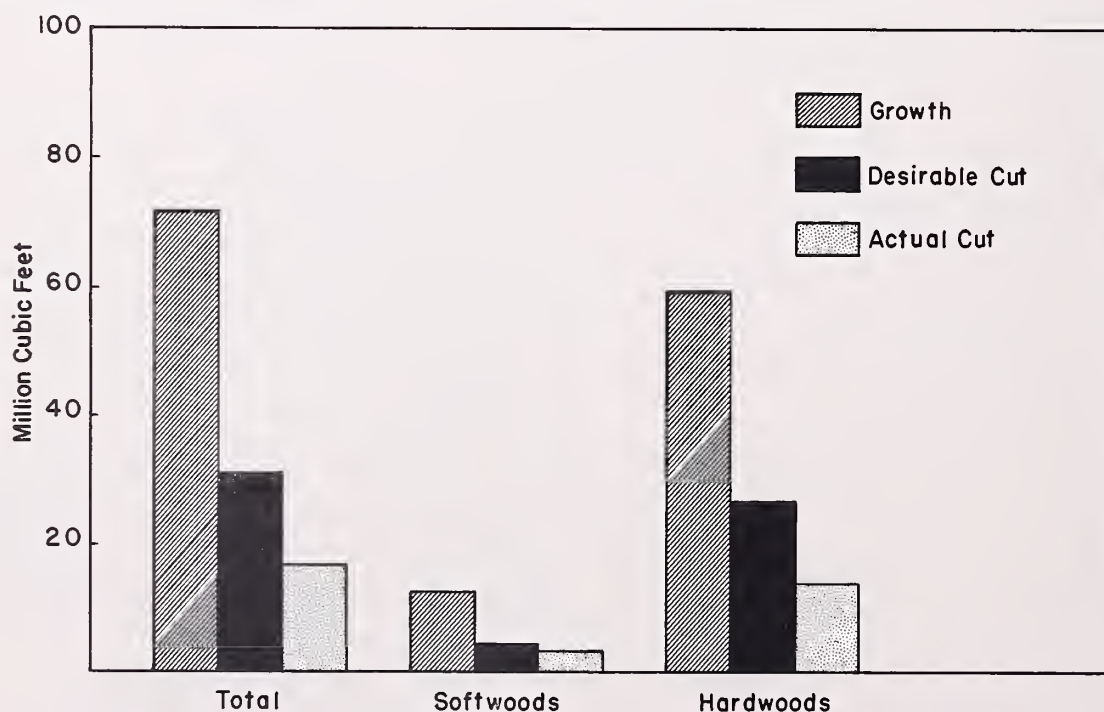


FIGURE 8. — Growth, desirable cut, and actual cut of growing stock by major species groups, 1963.

FIGURE 9. — Part of the ever-increasing surplus of small, sound growing stock.



Large increases in productivity and quality growth will not take place until stocking is improved. Poor growing stock and culls are occupying space that could be growing thrifty crop trees. At present only 45 percent of the forest is well stocked with merchantable or potentially merchantable trees. And only 20 percent is in a highly productive condition, i.e., well stocked with desirable trees or expected to attain this stocking without treatment in the near future. An average of one out of every seven live trees of merchantable size (5 inches d.b.h. and larger) is a cull.

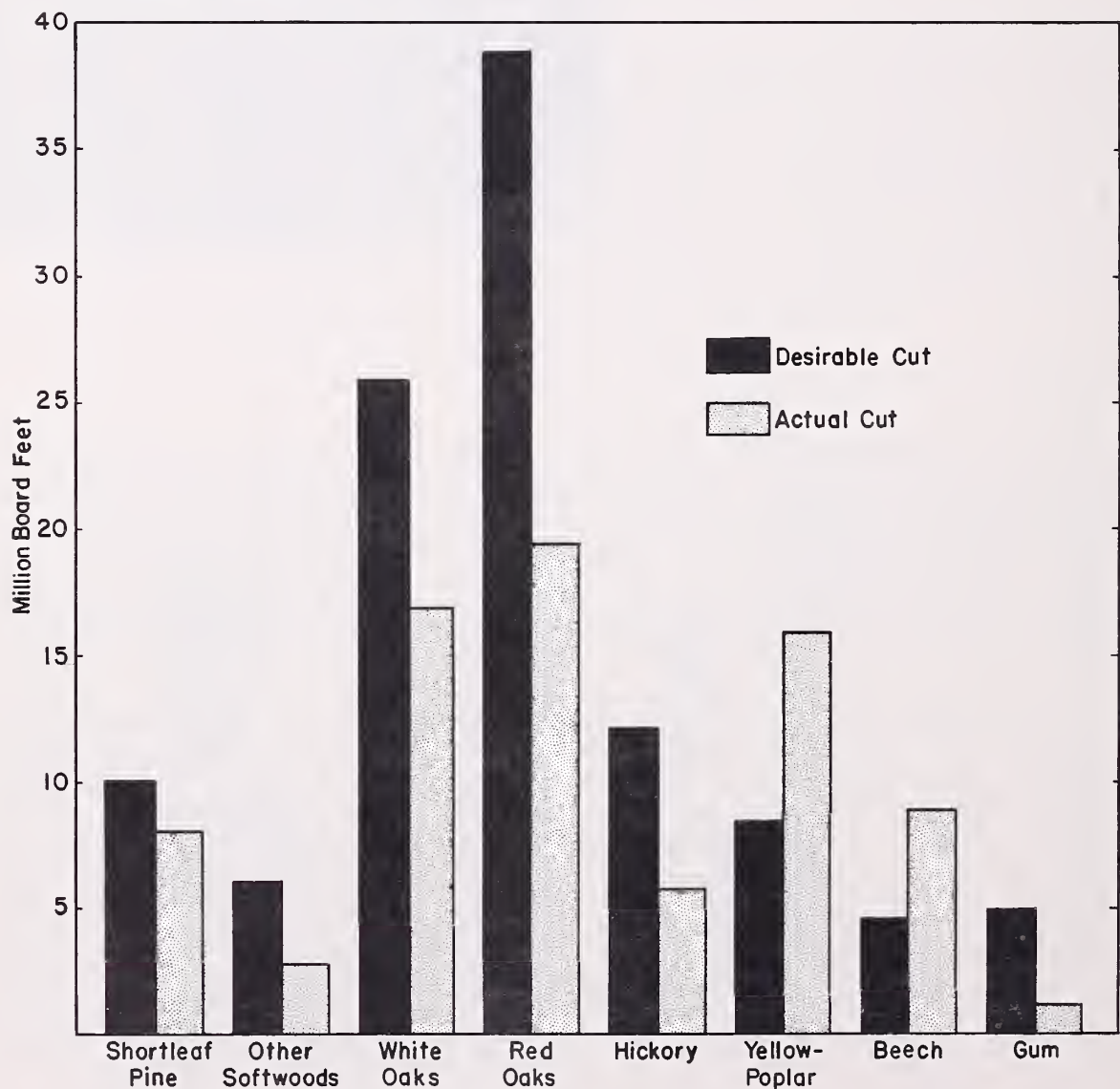
Even though volume growth is lower than it might be, it still exceeds the cut (fig. 8). A comparison of current growth (1963) and cutting (1962) information indicates growing-stock volume is increasing more than 3 percent and sawtimber volume more than 4 percent annually. However, most of the growth is on small trees while most of the cut is from large trees. The surplus of growth over cut is large in timber that can be used for such products as charcoal, pulpwood, and particle board where log quality is not a major consideration. In terms of wood supply, the opportunities for expanding such industries are excellent (fig. 9). But cut exceeds the growth for large, high-quality saw logs of species preferred by most of the wood-using industries of the region. Lumber-veneer, cooperage, and other traditional, forest-based industries that depend on high-quality saw logs are finding such logs increasingly difficult to obtain.

MORE TIMBER CAN BE HARVESTED

We have estimated the volume of merchantable timber that can be cut annually during the next decade and still maintain a healthy balance of age classes and improve the productivity of the region's forests. This is known as the "desirable cut." It includes harvest cuts from maturing stands, commercial thinnings from overstocked stands, and emergency cuts from overmature stands. The primary goal of the desirable cut is to establish a regulated forest producing a sustained yield of timber. When this is achieved, the desirable cut will be exactly equal to growth.

The desirable cut, then, is calculated chiefly from a silvicultural viewpoint — what is good for the stand in the longrun. Such long-range silvicultural goals may not always be compatible with those of forest industries that must consider current profits or those of small communities striving for rapid economic development.

FIGURE 10. — *Desirable cut and actual cut of sawtimber for selected species, 1963.*



Though theoretical, the desirable cut has practical application. It provides a standard that can be compared with actual cutting to indicate where shortages and surpluses occur in the timber supply. If the growth of a particular kind of timber exceeds the actual cut, it does not necessarily follow that the desirable cut will also exceed the actual cut. For example, it may be silviculturally desirable to hold back cutting until this timber reaches a larger size. Nor can we always expect the desirable cut to be less than the actual cut merely because growth is less than the actual cut. It is possible that a large amount of cutting is needed to salvage maturing or over-mature timber. This could increase the desirable cut greatly.

The desirable cut of growing stock for the Southern Cumberland Unit is estimated at 31 million cubic feet annually. This exceeds the current cutting rate by some 14 million cubic feet, a surplus that could support several new wood-using establishments (fig. 8). But the excess of desirable cut is not the same for all species and sizes of timber. The desirable cut of poletimber volume is almost three times the actual cut. New outlets for this small-sized timber would have to be found to make the desirable cut a commercial undertaking. The desirable cut of sawtimber also exceeds the actual cut but by a lesser amount. For many important timber species such as yellow-poplar, beech, black walnut, and the select oaks, the desirable cut of sawtimber is less than the actual cut (fig. 10). The deficit is greater in large-diameter classes where high quality is concentrated.

APPENDIX

Forest Survey Procedure

The resource statistics presented in this report were obtained from two sources: a timber-management-plan forest inventory of the Cumberland National Forest and a survey of all other forest land. Both were sampling surveys designed to yield reliable statistics for large areas. Both combined aerial photo interpretation and field work to minimize costs. Both employed electronic, data-processing machines to reduce computing time and generate more usable statistics than could be done by hand methods.

To attain specific levels of statistical accuracy, triple sampling was used. A large number of points were first examined on aerial photographs to determine the proportions of forest and nonforest land. One-fourth of the forest points were stereoscopically classified as to forest type, stand size, stocking, and site. One-twelfth of these points were in turn examined on the ground. The ground classification provided a check on photo classification and a means of improving estimates of forest area.

At each forest ground-check point a plot was established. Trees were classified and measured as a basis for estimating timber volume, growth, mortality, and quality. Ownership was determined for each plot.

Timber-cut information was based on forest-industry production records for 1962, on stump counts at forest-inventory plots, cutting records from large owners, and utilization factors based on a logging-residue study.

Accuracy of Survey Estimate

Estimates of forest area and timber volume are subject to two kinds of errors: (1) nonsampling errors caused by mistakes in judgment, recording of measurements, or in calculations, and (2) sampling errors inherent in statistical work.

Nonsampling errors are not measurable and cannot be shown. They are avoided as much as possible through training of personnel, close supervision, and careful checking of all phases of the work.

Sampling errors are subject to the laws of chance and may be estimated by statistical methods. These errors are held to acceptable levels commensurate with the values involved and funds available by adjusting the survey design and the intensity of the sample. With a probability of two out of three (that is, relatively good) the accompanying table shows the accuracy of the data presented in this report. The sampling error of a survey is less for a large class or block than for a smaller class or other subdivision. Some of the resource statistics presented in this report have such large errors that it would be unwise to use them alone — but if they are combined with other figures the error may be reduced enough to warrant their use. Weak figures are shown to allow various combinations of data.

Accuracy of forest area and timber volume data

Commercial-forest land	Standard error of sampling	Growing-stock volumes	Standard error of sampling	Sawtimber volumes	Standard error of sampling
<i>Acres</i>	<i>Percent</i>	<i>Thousand cubic feet</i>	<i>Percent</i>	<i>Thousand board feet</i>	<i>Percent</i>
2,200,700	1.1	1,613,000	2.4	5,097,830	3.9
1,000,000	1.6	1,000,000	3.1	1,000,000	9.1
500,000	2.3	500,000	4.3	500,000	12.9
300,000	3.0	300,000	5.6	300,000	16.7
100,000	5.2	100,000	9.7	100,000	28.9
50,000	7.4	50,000	14.5	50,000	40.8
30,000	9.5	30,000	17.7	30,000	52.7
10,000	16.5	10,000	30.7	10,000	91.4
5,000	23.4	5,000	43.4		
3,000	30.1				
1,000	52.2				

Definition of Terms

Land and Forest Area

Gross area. — The entire area of land and water as determined by the Census Bureau.

Land area. — The area of dry land and land temporarily or partially covered by water such as marshes, swamps, and flood plains, streams, and sloughs less than 1/8 mile wide; and lakes, reservoirs, and ponds less than 40 acres in area.

Forest land. — Land at least 10 percent stocked by forest trees of any size, or formerly having such tree cover and not currently developed for nonforest use. Does not include urban or thickly settled residential and resort areas, city parks, orchards, farmsteads, improved roads, or land developed and maintained for nonforest use by fencing, seeding, and so forth. The minimum area for classification of forest land or classes of forest land was 1 acre. Roadside, streamside, and shelterbelt strips of timber having a crown width of at least 120 feet qualified as forest land. Unimproved roads and trails, streams, and clearings in forest land were included as forest if less than 120 feet wide.

Commercial-forest land. — Forest land that is producing or capable of producing crops of industrial wood and not withdrawn from timber utilization by statute or administrative regulation.

Noncommercial-forest land. — Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions; and productive, public-forest land withdrawn from commercial timber use through statute or administrative regulation.

Ownership

National Forest. — Federal land that has been designated by Executive order or statute as National Forest, including purchase units; and other land under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III land.

Other public. — All publicly owned land other than National Forest.

Forest industry. — Land owned by companies or individuals operating wood-using plants.

Farmer and miscellaneous private. — All privately owned land except forest industry land.

Forest Types

Forest type. — A classification of forest land based upon species composition considering all live trees.

Southern pine. — Forests in which 50 percent or more of the stocking is short-leaf or other southern yellow pines, singly or in combination.

Redcedar-hardwoods. — Forests in which 50 percent or more of the stocking is hardwoods but in which redcedar makes up at least 25 percent of the stocking. Included also are those areas where redcedar makes up most of the stocking.

Oak-pine. — Forests in which 50 percent or more of the stocking is hardwoods (usually upland oaks) but in which southern pine makes up at least 25 percent of the stocking.

White oak. — Forests in which 50 percent or more of the stocking is white oak, except stands that classify as redcedar-hardwoods or oak-pine.

Oak-hickory. — Forests in which 50 percent or more of the stocking is upland oaks or hickories, singly or in combination, except stands that classify as oak-pine, redcedar-hardwoods, or white oak.

Central mixed hardwoods. — Forests in which 50 percent or more of the stocking is a combination of hardwood species, principally yellow-poplar, maple, beech, basswood, black walnut, elm, and northern red oak, except stands that classify as redcedar-hardwoods, oak-pine, oak-hickory, maple-beech, or elm-ash-cottonwood.

Maple-beech. — Forests in which 50 percent or more of the stocking is maple or beech, singly or in combination, except stands that classify as redcedar-hardwoods or oak-pine.

Elm-ash-cottonwood. — Forests in which 50 percent or more of the stocking is elm, ash, or cottonwood, singly or in combination except stands that classify as redcedar-hardwoods or oak-pine.

Stand-Size Classes

Stand-size class. — A classification of forest land based on the predominant size of timber present; sawtimber, poletimber, or seedlings and saplings.

Sawtimber stands. — Stands at least 10 percent stocked with growing-stock trees, with half or more of this stocking in sawtimber or poletimber trees and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands. — Stands at least 10 percent stocked with growing-stock trees, and with half or more of this stocking in sawtimber and/or poletimber trees and with poletimber stocking exceeding that of sawtimber.

Seedling-sapling stands. — Stands at least 10 percent stocked with growing-stock trees and with seedlings and/or saplings comprising more than half of this stocking.

Nonstocked areas. — Commercial-forest land less than 10 percent stocked with growing-stock trees.

Stocking Classes

Stocking class. — A classification of commercial-forest land based on the percent of area occupied by growing-stock trees.

Well stocked. — Stands that are 70 percent or more stocked with present or potential growing-stock trees.

Medium stocked. — Stands that are 40 to 69 percent stocked with present or potential growing-stock trees.

Poorly stocked. — Stands that are from 10 to 39 percent stocked with present or potential growing-stock trees.

Nonstocked. — Areas of commercial forest land not qualifying as sawtimber, poletimber, or seedling and sapling stands. These areas may contain some volume but less than 10 percent of the growing space is effectively utilized by growing stock.

Area-Condition Classes

A classification of commercial-forest land based upon stocking by desirable growing-stock trees and conditions affecting current and prospective timber growth. Desirable growing-stock trees are those that have no serious defects in quality limiting present or prospective use. They have relatively high vigor and contain no pathogens that may result in death or serious deterioration before rotation age. These are the trees that would be favored in silvicultural operations.

Desirable. — Areas 70 percent or more stocked with desirable trees.

Moderate and favorable. — Areas 40 to 70 percent stocked with desirable trees and with 30 percent or less of the area having other trees and/or inhibiting vegetation or surface conditions that will prevent occupancy by desirable trees.

Moderate and unfavorable. — Areas 40 to 70 percent stocked with desirable trees and with more than 30 percent of the area having other trees and/or inhibiting vegetation or surface conditions that will prevent occupancy by desirable trees.

Poor but favorable. — Areas less than 40 percent stocked with desirable trees and with 30 percent or less of the area having other trees and/or inhibiting vegetation or surface conditions that prevent occupancy by desirable trees.

Poor and unfavorable. — Areas less than 40 percent stocked with desirable trees and with more than 30 percent of the area having other trees and/or inhibiting vegetation or surface conditions that prevent occupancy by desirable species.

Volume Classification

Growing-stock volume. — Cubic-foot volume of sound wood in the bole of sawtimber and poletimber trees from the stump to a minimum 4-inch-top diameter outside bark or to the point where the central stem breaks into limbs.

Sawtimber volume. — Net volume of the saw-log portion of live sawtimber trees in board feet, International ¼-inch rule. The saw-log portion extends from stump to a minimum top diameter outside bark of 6 inches for softwoods and 8 inches for hardwoods or to the point where defects reduce saw-log quality below Standard Log Grade 3 or Tie-and-Timber Grade.

Tree-Size Classes

Sawtimber trees. — Live trees of commercial species containing at least an 8-foot saw log. Softwoods must be at least 9 inches and hardwoods at least 11 inches d.b.h. outside bark.

Poletimber trees. — Live trees of commercial species at least 5 inches d.b.h. but smaller than sawtimber size, and of good form and vigor.

Saplings. — Live trees of commercial species 1 to 5 inches d.b.h. and of good form and vigor.

Seedlings. — Live trees of commercial species less than 1 inch d.b.h. that are expected to survive.

Growth

Net annual growth. — The annual change in volume of sound wood in live sawtimber and poletimber trees and the total volume of trees entering these classes through ingrowth less volume losses resulting from natural causes on commercial-forest land.

Growing-stock growth. — Net annual growth of pole and sawtimber trees in cubic feet.

Sawtimber growth. — Net annual growth of sawtimber trees in board feet, International ¼-inch rule.

Timber Cut

Timber cut from growing stock. — The net cubic-foot volume of sound wood in live sawtimber and poletimber trees cut for forest products during a specified year, including both roundwood products and logging residues.

Timber cut from sawtimber. — The net board-foot volume of live sawtimber trees cut for forest products during a specified year, including both roundwood products and logging residues.

Desirable cut (formerly called allowable cut). — The net volume of live sawtimber and poletimber trees that can be cut annually during the next 10 years in commercial-logging operations while maintaining or increasing growing stock and while effecting a reasonably even distribution of age classes below the rotation age selected for each type. It includes harvest and improvement cuts yielding 3 cords or more per acre, and one-tenth of the entire net volume of stands 10 or more years beyond the rotation age. Desirable cut includes all timber of merchantable size that should be cut from commercial-forest land in order to salvage, rejuvenate, or improve the stands and increase the growth without regard to restraints of ownership, inaccessibility, or the profit motive. Some of this timber may not be available for sale, too hard to get at or too scattered, or of currently unwanted species or quality. More forest products may be obtained by reducing the "forest capital."

*Rotation ages for saw-log trees in extensively managed stands
by forest-type and site-index classes*

(In years)

Forest type	Site index (50-year height in feet)*						
	40	50	60	70	80	90	100+
Southern pine	120	110	90	--	--	--	--
Redcedar-hardwoods	120	110	90	--	--	--	--
Oak-pine	120	110	90	--	--	--	--
White oak	120	110	90	80	75	70	--
Oak-hickory	120	110	90	80	75	70	--
Central mixed hardwoods	--	110	90	80	75	70	60
Maple-beech	--	100	100	100	100	--	--
Oak-gum-cypress	--	--	--	80	75	70	60
Elm-ash-cottonwood†	--	--	--	80	70	60	60

* Except in the case of cottonwood for which it is total height at 25 years.

† The rotation for cottonwood is half of the age shown.

Miscellaneous Definitions

Site class. — A classification of commercial-forest land based on potential yields in cubic feet per acre of mean annual growth at culmination of increment in fully stocked stands of desirable trees.

D.b.h. (Diameter at breast height). — Tree diameter in inches measured outside the bark at a point 4½ feet above the ground.

Principal Commercial Tree Species of Kentucky²

Softwood Species

Cypress (baldcypress)	<i>Taxodium distichum</i> (L.) Rich.
Hemlock (eastern)	<i>Tsuga canadensis</i> (L.) Carr.
Pine group includes —	
Shortleaf pine	<i>Pinus echinata</i> Mill.
Other yellow pines:	
Pitch pine	<i>P. rigida</i> Mill.
Virginia pine	<i>P. virginiana</i> Mill.
White pine (eastern)	<i>P. strobus</i> L.
Redcedar (eastern)	<i>Juniperus virginiana</i> L.

Hardwood Species

Ash	<i>Fraxinus</i> L. species
Basswood (American)	<i>Tilia americana</i> L.
Beech (American)	<i>Fagus grandifolia</i> Ehrh.
Birch (yellow)	<i>Betula alleghaniensis</i> Britton
Blackgum	<i>Nyssa</i> L. species
Black walnut	<i>Juglans nigra</i> L.
Cottonwood (eastern)	<i>Populus deltoides</i> Bartr.
Hickory	<i>Carya</i> Nutt. species
Maple (hard) includes —	
Black maple	<i>Acer nigrum</i> Michx. f.
Sugar maple	<i>A. saccharum</i> Marsh.
Maple (soft) includes —	
Boxelder	<i>A. negundo</i> L.
Red maple	<i>A. rubrum</i> var. <i>rubrum</i> L.
Silver maple	<i>A. saccharinum</i> L.
Oak group includes —	
Select red oaks:	
Cherrybark oak	<i>Quercus falcata</i> var. <i>pagodaefolia</i> Ell.
Northern red oak	<i>Q. rubra</i> L.
Shumard oak	<i>Q. shumardii</i> Buckl.
Other red oaks:	
Black oak	<i>Q. velutina</i> Lam.
Pin oak	<i>Q. palustris</i> Muenchh.
Scarlet oak	<i>Q. coccinea</i> Muenchh.
Shingle oak	<i>Q. imbricaria</i> Michx.
Southern red oak	<i>Q. falcata</i> Michx.
Water oak	<i>Q. nigra</i> L.
Willow oak	<i>Q. phellos</i> L.
Select white oaks:	
Bur oak	<i>Q. macrocarpa</i> Michx.
Chinkapin oak	<i>Q. muehlenbergii</i> Engelm.

²The common and scientific names are based on: Little, Elbert L., Jr. CHECK LIST OF NATIVE AND NATURALIZED TREES OF THE UNITED STATES (INCLUDING ALASKA). U.S. Dept. Agr. Handb. 41, 472 pp. 1953.

Swamp chestnut oak	<i>Q. michauxii</i> Nutt.
Swamp white oak	<i>Q. bicolor</i> Willd.
White oak	<i>Q. alba</i> L.
Other white oaks:	
Chestnut oak	<i>Q. prinus</i> L.
Overcup oak	<i>Q. lyrata</i> Walt.
Post oak	<i>Q. stellata</i> var. <i>stellata</i> Wangenh.
Sweetgum	<i>Liquidambar styraciflua</i> L.
Yellow-poplar	<i>Liriodendron tulipifera</i> L.
Other hardwoods includes —	
Birch (river)	<i>Betula nigra</i> L.
Buckeye (Ohio)	<i>Aesculus glabra</i> Willd.
Buckeye (yellow)	<i>A. octandra</i> Marsh.
Butternut	<i>Juglans cinerea</i> L.
Cherry (black)	<i>Prunus serotina</i> Ehrh.
Coffeetree (Kentucky)	<i>Gymnocladus dioicus</i> (L.) K. Koch.
Cucumbertree	<i>Magnolia acuminata</i> L.
Dogwood (flowering)	<i>Cornus florida</i> L.
Elm	<i>Ulmus</i> L. species
Hackberry	<i>Celtis occidentalis</i> L.
Honeylocust	<i>Gleditsia triacanthos</i> L.
Locust (black)	<i>Robinia pseudoacacia</i> L.
Mulberry (red)	<i>Morus rubra</i> L.
Osage-orange	<i>Maclura pomifera</i> (Raf.) Schneid.
Persimmon (common)	<i>Diospyros virginiana</i> L.
Sassafras	<i>Sassafras albidum</i> (Nutt.) Nees
Sycamore (American)	<i>Platanus occidentalis</i> L.
Willow (black)	<i>Salix nigra</i> Marsh.

Statistical Tables

The following tables present forest-resource data for the Southern Cumberland Unit and each of its 12 counties. Tables 1-7 contain information on land and forest area; tables 8-12 information on numbers of trees and timber volume; and tables 13-18 information on growth, cut, and desirable cut. Data for individual counties are shown in tables 1, 4, 10, 14, and 18.

Table 1. --*Area of land and forest land by counties*
Southern Cumberland Unit, Kentucky, 1963

County	Gross area*	Land area*	Forest land			Commercial forest as a percent of land area
			All forest	Non- commercial	Commercial	
	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Percent</i>
Bell	236,800	236,800	211,500	12,600	198,900	84.0
Breathitt	316,200	316,200	281,900	900	281,000	88.9
Clay	303,400	303,400	247,600	400	247,200	81.5
Estill	166,400	166,400	125,700	300	125,400	75.4
Jackson	215,700	215,700	161,700	500	161,200	74.7
Knox	238,700	238,700	177,700	100	177,600	74.4
Laurel	286,100	283,500	189,000	1,200	187,800	66.2
Lee	134,400	134,400	109,200	200	109,000	81.1
McCreary	269,400	261,100	249,800	1,600	248,200	95.1
Owsley	126,100	126,100	96,900	100	96,800	76.8
Rockcastle	199,000	199,000	140,500	1,100	139,400	70.1
Whitley	294,400	293,100	229,100	900	228,200	77.9
Total	2,786,600	2,774,400	2,220,600	19,900	2,200,700	79.3

* Gross area and land area are from Bureau of Census, 1960. Land area includes 2,400 acres in small bodies of water.

Table 2. -- *Area of commercial-forest land by ownership and stand-size class*
Southern Cumberland Unit, Kentucky, 1963

(In acres)

Ownership class	All stands	Saw- timber	Pole- timber	Seedlings and saplings	Non- stocked
National Forest	306,000	246,300	53,300	2,500	3,900
Other public	19,400	8,200	9,600	900	700
Forest industry	61,400	11,600	27,900	21,900	--
Farmer and miscellaneous private	1,813,900	875,500	417,900	509,100	11,400
All ownerships	2,200,700	1,141,600	508,700	534,400	16,000

Table 3. -- *Area of commercial-forest land by stocking and stand-size class*
Southern Cumberland Unit, Kentucky, 1963

(In acres)

Stocking class (percent)	All stands	Saw- timber	Pole- timber	Seedlings and saplings	Non- stocked
70 or more	991,700	618,800	219,700	153,200	--
40-70	977,800	466,300	226,400	285,100	--
10-40	215,200	56,500	62,600	96,100	--
Less than 10	16,000	--	--	--	16,000
All classes	2,200,700	1,141,600	508,700	534,400	16,000

Table 4. -- *Area of commercial-forest land by forest type and stand-size class by county*
Southern Cumberland Unit, Kentucky, 1963

(In acres)

ALL COUNTIES

Forest type	All stands	Saw- timber	Pole- timber	Seedlings and saplings	Non- stocked
Southern pine	132,800	60,200	29,300	42,600	700
Redcedar-hardwoods	12,900	--	--	12,900	--
Oak-pine	275,000	150,000	57,700	65,600	1,700
White oak	41,500	26,900	14,400	--	200
Oak-hickory	870,100	566,800	190,700	111,800	800
Central mixed hardwoods	764,500	274,000	202,400	275,500	12,600
Maple-beech	49,200	46,000	3,200	--	--
Elm-ash-cottonwood	54,700	17,700	11,000	26,000	--
All types	2,200,700	1,141,600	508,700	534,400	16,000

BELL COUNTY

Southern pine	7,800	3,300	1,100	3,400	--
Redcedar-hardwoods	500	--	--	500	--
Oak-pine	16,100	6,000	4,100	6,000	--
White oak	4,400	2,600	1,800	--	--
Oak-hickory	80,800	50,800	17,800	12,200	--
Central mixed hardwoods	79,500	26,900	23,600	27,700	1,300
Maple-beech	5,300	4,700	600	--	--
Elm-ash-cottonwood	4,500	1,500	1,100	1,900	--
All types	198,900	95,800	50,100	51,700	1,300

BREATHITT COUNTY

Southern pine	10,700	4,800	2,200	3,700	--
Redcedar-hardwoods	1,100	--	--	1,100	--
Oak-pine	21,800	7,600	5,400	8,800	--
White oak	4,600	2,900	1,700	--	--
Oak-hickory	119,600	72,700	26,300	20,600	--
Central mixed hardwoods	110,100	37,900	31,300	39,400	1,500
Maple-beech	5,300	4,900	400	--	--
Elm-ash-cottonwood	7,800	2,000	2,100	3,700	--
All types	281,000	132,800	69,400	77,300	1,500

Table 4. -- *Area of commercial-forest land by forest type and stand-size class by county*
Southern Cumberland Unit, Kentucky, 1963 -- Continued

(In acres)

CLAY COUNTY

Southern pine	11,600	6,700	1,600	3,300	--
Redcedar-hardwoods	1,300	--	--	1,300	--
Oak-pine	25,600	10,300	6,400	8,900	--
White oak	4,500	3,200	1,300	--	--
Oak-hickory	96,800	63,000	19,900	13,900	--
Central mixed hardwoods	91,600	28,200	27,300	35,100	1,000
Maple-beech	8,800	8,400	400	--	--
Elm-ash-cottonwood	7,000	2,000	1,400	3,600	--
All types	247,200	121,800	58,300	66,100	1,000

ESTILL COUNTY

Forest type	All stands	Saw-timber	Pole-timber	Seedlings and saplings	Non-stocked
Southern pine	9,600	2,300	2,300	5,000	--
Redcedar-hardwoods	500	--	--	500	--
Oak-pine	12,100	5,100	2,900	4,100	--
White oak	1,800	1,100	700	--	--
Oak-hickory	49,600	31,600	11,700	6,200	100
Central mixed hardwoods	45,600	17,600	10,700	16,400	900
Maple-beech	3,400	3,100	300	--	--
Elm-ash-cottonwood	2,800	900	400	1,500	--
All types	125,400	61,700	29,000	33,700	1,000

JACKSON COUNTY

Southern pine	3,600	1,600	400	1,600	--
Redcedar-hardwoods	900	--	--	900	--
Oak-pine	19,500	10,300	4,300	4,700	200
White oak	3,100	2,300	800	--	--
Oak-hickory	78,800	48,300	22,400	7,800	300
Central mixed hardwoods	50,400	16,200	14,900	18,300	1,000
Maple-beech	1,200	1,100	100	--	--
Elm-ash-cottonwood	3,700	900	800	2,000	--
All types	161,200	80,700	43,700	35,300	1,500

KNOX COUNTY

Southern pine	5,900	2,400	700	2,800	--
Redcedar-hardwoods	1,000	--	--	1,000	--
Oak-pine	16,400	4,800	4,600	7,000	--
White oak	2,100	1,800	300	--	--
Oak-hickory	69,900	41,700	16,800	11,400	--
Central mixed hardwoods	74,000	21,300	22,700	28,400	1,600
Maple-beech	1,900	1,900	--	--	--
Elm-ash-cottonwood	6,400	1,200	1,600	3,600	--
All types	177,600	75,100	46,700	54,200	1,600

Table 4. -- *Area of commercial-forest land by forest type and stand-size class by county*
Southern Cumberland Unit, Kentucky, 1963 -- Continued

(In acres)

LAUREL COUNTY

Southern pine	24,000	8,900	5,400	9,600	100
Redcedar-hardwoods	2,700	--	--	2,700	--
Oak-pine	40,800	27,900	5,500	7,100	300
White oak	3,600	2,200	1,400	--	--
Oak-hickory	53,900	38,600	12,400	2,900	--
Central mixed hardwoods	52,900	26,200	5,800	20,000	900
Maple-beech	4,400	4,400	--	--	--
Elm-ash-cottonwood	5,500	3,700	100	1,700	--
All types	187,800	111,900	30,600	44,000	1,300

LEE COUNTY

Forest type	All stands	Saw-timber	Pole-timber	Seedlings and saplings	Non-stocked
Southern pine	6,600	3,100	1,400	2,100	--
Redcedar-hardwoods	800	--	--	800	--
Oak-pine	13,000	5,800	3,200	4,000	--
White oak	1,200	900	300	--	--
Oak-hickory	41,200	25,900	8,200	7,100	--
Central mixed hardwoods	41,000	12,400	10,100	17,500	1,000
Maple-beech	1,700	1,700	--	--	--
Elm-ash-cottonwood	3,500	1,400	800	1,300	--
All types	109,000	51,200	24,000	32,800	1,000

McCREARY COUNTY

Southern pine	24,500	15,500	6,300	2,200	500
Redcedar-hardwoods	300	--	--	300	--
Oak-pine	59,700	46,900	9,400	2,300	1,100
White oak	6,700	4,100	2,600	--	--
Oak-hickory	96,300	74,100	16,100	5,700	400
Central mixed hardwoods	53,900	31,700	10,700	10,600	900
Maple-beech	4,100	3,900	200	--	--
Elm-ash-cottonwood	2,700	1,200	400	1,100	--
All types	248,200	177,400	45,700	22,200	2,900

OWSLEY COUNTY

Southern pine	4,200	1,800	600	1,800	--
Redcedar-hardwoods	1,100	--	--	1,100	--
Oak-pine	5,900	1,300	1,600	3,000	--
White oak	1,400	800	400	--	200
Oak-hickory	35,400	19,700	8,100	7,600	--
Central mixed hardwoods	45,100	12,500	11,400	19,800	1,400
Maple-beech	300	300	--	--	--
Elm-ash-cottonwood	3,400	400	600	2,400	--
All types	96,800	36,800	22,700	35,700	1,600

Table 4. -- *Area of commercial-forest land by forest type and stand-size class by county*
Southern Cumberland Unit, Kentucky, 1963 -- Continued

(In acres)

ROCKCASTLE COUNTY

Southern pine	7,000	3,300	1,700	2,000	--
Redcedar-hardwoods	1,200	--	--	1,200	--
Oak-pine	12,900	7,200	2,800	2,900	--
White oak	4,100	2,400	1,700	--	--
Oak-hickory	61,200	42,800	13,000	5,400	--
Central mixed hardwoods	44,100	13,900	15,700	14,300	200
Maple-beech	5,700	5,000	700	--	--
Elm-ash-cottonwood	3,200	800	700	1,700	--
All types	139,400	75,400	36,300	27,500	200

WHITLEY COUNTY

Forest type	All stands	Saw-timber	Pole-timber	Seedlings and saplings	Non-stocked
Southern pine	17,300	6,500	5,600	5,100	100
Redcedar-hardwoods	1,500	--	--	1,500	--
Oak-pine	31,200	16,800	7,500	6,800	100
White oak	4,000	2,600	1,400	--	--
Oak-hickory	86,600	57,600	18,000	11,000	--
Central mixed hardwoods	76,300	29,200	18,200	28,000	900
Maple-beech	7,100	6,600	500	--	--
Elm-ash-cottonwood	4,200	1,700	1,000	1,500	--
All types	228,200	121,000	52,200	53,900	1,100

Table 5. -- *Area of commercial-forest land by forest type and site class*
Southern Cumberland Unit, Kentucky, 1963

(In acres)

Forest type	All sites	Site class (potential growth per acre per year in cubic feet)			
		120 or more	85 to 120	50 to 85	Less than 50
Southern pine	132,800	5,200	12,300	104,200	11,100
Redcedar-hardwoods	12,900	--	6,400	6,500	--
Oak-pine	275,000	29,300	79,400	135,100	31,200
White oak	41,500	800	28,200	12,300	200
Oak-hickory	870,100	77,100	456,800	331,000	5,200
Central mixed hardwoods	764,500	39,100	330,500	265,500	129,400
Maple-beech	49,200	7,300	23,200	12,800	5,900
Elm-ash-cottonwood	54,700	--	11,800	33,900	9,000
All types	2,200,700	158,800	948,600	901,300	192,000

Table 6. -- *Area of commercial-forest land by forest type and stand-age class*
Southern Cumberland Unit, Kentucky, 1963

(In acres by age in years)

Forest type	All ages	Less than 9	10-19	20-29	30-39	40-49	50-59	60-79	80-99	100 or more
Southern pine	132,800	13,800	11,400	32,700	20,500	25,800	9,000	9,400	6,300	3,900
Redcedar-hardwoods	12,900	--	8,600	--	4,300	--	--	--	--	--
Oak-pine	275,000	6,800	33,300	46,000	53,200	31,500	37,700	50,000	12,400	4,100
White oak	41,500	100	300	1,300	1,600	8,700	7,800	16,900	4,300	500
Oak-hickory	870,100	14,600	33,000	73,300	147,700	124,000	133,800	206,300	104,400	33,000
Central mixed hardwoods	764,500	35,100	144,500	136,900	150,000	92,100	83,900	45,500	52,300	24,200
Maple-beech	49,200	--	--	--	7,600	20,000	3,500	13,200	--	4,900
Elm-ash-cottonwood	54,700	3,400	13,700	14,400	3,400	--	9,300	6,300	4,200	--
All types	2,200,700	73,800	244,800	304,600	388,300	302,100	285,000	347,600	183,900	70,600

Table 7. -- *Area of commercial-forest land by forest type and area-condition class*
Southern Cumberland Unit, Kentucky, 1963

(In acres)

Forest type	All area conditions	Desirable	Moderate and favorable	Moderate and unfavorable	Poor but favorable	Poor and unfavorable
Southern pine	132,800	12,800	27,300	28,100	14,400	50,200
Redcedar-hardwoods	12,900	--	6,400	--	3,200	3,300
Oak-pine	275,000	15,200	24,000	60,500	36,400	138,900
White oak	41,500	1,500	18,300	4,200	4,100	13,400
Oak-hickory	870,100	35,600	172,000	177,800	80,700	404,000
Central mixed hardwoods	764,500	11,200	120,000	122,000	80,600	430,700
Maple-beech	49,200	--	--	12,100	--	37,100
Elm-ash-cottonwood	54,700	--	--	10,000	3,400	41,300
All types	2,200,700	76,300	368,000	414,700	222,800	1,118,900

Table 8. -- *Number of growing-stock trees on commercial-forest land by diameter class and species group*
Southern Cumberland Unit, Kentucky, 1963

(In thousand trees)

D.b.h. class (inches)	All species	Softwoods	Hardwoods
2	417,250	55,820	361,430
4	147,390	27,800	119,590
6	74,960	12,630	62,330
8	43,960	8,620	35,340
10	27,800	5,040	22,760
12	16,310	2,360	13,950
14	9,570	1,400	8,170
16	5,770	670	5,100
18	3,260	200	3,060
20	1,500	80	1,420
22	820	50	770
24 +	1,060	40	1,020
All diameter classes	749,650	114,710	634,940

Table 9. -- *Volume of growing stock and sawtimber on commercial-forest land by ownership and species group*
Southern Cumberland Unit, Kentucky, 1963

Ownership class	Growing stock			Sawtimber		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
National Forest	359,290	119,390	239,900	878,380	342,810	535,570
Other public	12,860	1,230	11,630	43,250	3,800	39,450
Forest industry	54,760	8,520	46,240	144,400	41,520	102,880
Farmer and miscellaneous private	1,186,300	109,970	1,076,330	4,031,800	325,570	3,706,230
All ownerships	1,613,210	239,110	1,374,100	5,097,830	713,700	4,384,130

*International 1/4-inch rule.

Table 10. -- *Volume of growing stock and sawtimber on commercial-forest land by species and kind of material*
Southern Cumberland Unit, Kentucky, 1963

ALL COUNTIES

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Softwoods:						
Shortleaf pine	129,820	34,700	95,120	386,190	334,820	51,370
Other yellow pines	84,570	28,680	55,890	250,650	191,350	59,300
White pine	510	450	60	190	190	--
Hemlock	21,280	3,240	18,040	69,840	65,220	4,620
Redcedar	2,230	1,180	1,050	3,850	3,290	560
Other	700	230	470	2,980	--	2,980
Total softwoods	239,110	68,480	170,630	713,700	594,870	118,830
Hardwoods:						
Select white oak	223,990	110,880	113,110	579,840	485,430	94,410
Select red oak	59,830	13,750	46,080	252,000	209,320	42,680
Other white oak	147,650	53,470	94,180	496,750	416,140	80,610
Other red oak	305,940	88,290	217,650	1,156,970	985,990	170,980
Hickories	177,310	82,440	94,870	513,690	431,330	82,360
Yellow birch	1,130	440	690	2,910	2,910	--
Hard maple	25,340	13,180	12,160	67,470	55,480	11,990
Beech	68,520	13,440	55,080	304,230	269,160	35,070
Black walnut	9,530	5,590	3,940	20,860	7,410	13,450
Ash	19,260	9,740	9,520	49,730	41,530	8,200
Soft maple	62,230	35,080	27,150	141,350	106,070	35,280
Sweetgum	17,260	7,080	10,180	55,860	45,810	10,050
Blackgum	33,970	11,470	22,500	119,440	97,780	21,660
Cottonwood	50	30	20	80	80	--
Yellow-poplar	163,570	70,600	92,970	470,190	369,040	101,150
Basswood	11,370	2,870	8,500	49,770	32,900	16,870
Other	47,150	27,210	19,940	102,990	81,060	21,930
Total hardwoods	1,374,100	545,560	828,540	4,384,130	3,637,440	746,690
All species	1,613,210	614,040	999,170	5,097,830	4,232,310	865,520

BELL COUNTY

Softwoods:						
Shortleaf pine	5,530	2,290	3,240	17,960	13,690	4,270
Other yellow pines	5,040	1,790	3,250	16,820	11,750	5,070
White pine	60	60	--	--	--	--
Hemlock	630	180	450	2,440	2,080	360
Redcedar	230	120	110	400	330	70
Other	70	20	50	290	--	290
Total softwoods	11,560	4,460	7,100	37,910	27,850	10,060
Hardwoods:						
Select white oak	18,870	9,620	9,250	51,070	41,700	9,370
Select red oak	6,160	1,460	4,700	26,820	22,000	4,820
Other white oak	13,050	3,900	9,150	50,600	41,880	8,720
Other red oak	25,810	7,260	18,550	104,930	88,120	16,810
Hickories	16,040	7,690	8,350	49,590	40,480	9,110
Yellow birch	120	60	60	250	250	--
Hard maple	2,680	1,450	1,230	7,140	5,810	1,330
Beech	7,650	1,680	5,970	33,760	29,820	3,940
Black walnut	990	550	440	2,410	780	1,630
Ash	2,140	1,080	1,060	5,690	4,720	970
Soft maple	6,420	3,750	2,670	14,290	10,580	3,710
Sweetgum	1,410	650	760	4,310	3,450	860
Blackgum	2,850	950	1,900	10,870	8,690	2,180
Cottonwood	--	--	--	--	--	--
Yellow-poplar	15,060	7,030	8,030	42,080	31,800	10,280
Basswood	1,140	290	850	5,210	3,350	1,860
Other	5,350	3,120	2,230	11,910	9,300	2,610
Total hardwoods	125,740	50,540	75,200	420,930	342,730	78,200
All species	137,300	55,000	82,300	458,840	370,580	88,260

* International 1/4-inch rule.

Table 10. -- *Volume of growing stock and sawtimber on commercial-forest land by species and kind of material*
Southern Cumberland Unit, Kentucky, 1963 -- Continued

BREATHITT COUNTY

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Softwoods:						
Shortleaf pine	6,900	3,030	3,870	21,440	16,260	5,180
Other yellow pines	6,900	2,540	4,360	22,340	15,480	6,860
White pine	80	80	--	--	--	--
Hemlock	690	190	500	2,770	2,340	430
Redcedar	330	180	150	560	480	80
Other	120	40	80	530	--	530
Total softwoods	15,020	6,060	8,960	47,640	34,560	13,080
Hardwoods:						
Select white oak	26,030	12,960	13,070	72,320	59,070	13,250
Select red oak	8,710	2,030	6,680	38,080	31,230	6,850
Other white oak	18,310	5,590	12,720	69,850	57,820	12,030
Other red oak	37,980	10,670	27,310	154,010	129,370	24,640
Hickories	22,910	10,880	12,030	71,610	58,460	13,150
Yellow birch	200	90	110	480	480	--
Hard maple	3,610	1,900	1,710	9,920	8,090	1,830
Beech	9,790	2,130	7,660	43,650	38,570	5,080
Black walnut	1,470	830	640	3,570	1,150	2,420
Ash	3,160	1,500	1,660	8,830	7,320	1,510
Soft maple	8,560	5,170	3,390	18,230	13,510	4,720
Sweetgum	2,010	1,000	1,010	5,690	4,550	1,140
Blackgum	4,180	1,380	2,800	16,000	12,810	3,190
Cottonwood	--	--	--	--	--	--
Yellow-poplar	20,810	9,430	11,380	60,700	45,900	14,800
Basswood	1,690	410	1,280	7,810	5,010	2,800
Other	6,770	4,020	2,750	14,690	11,480	3,210
Total hardwoods	176,190	69,990	106,200	595,440	484,820	110,620
All species	191,210	76,050	115,160	643,080	519,380	123,700

CLAY COUNTY

Softwoods:						
Shortleaf pine	6,670	3,010	3,660	19,830	15,460	4,370
Other yellow pines	8,270	2,710	5,560	28,160	20,110	8,050
White pine	50	50	--	--	--	--
Hemlock	690	220	470	2,380	2,070	310
Redcedar	290	150	140	510	420	90
Other	120	40	80	530	--	530
Total softwoods	16,090	6,180	9,910	51,410	38,060	13,350
Hardwoods:						
Select white oak	22,660	10,880	11,780	65,750	53,600	12,150
Select red oak	6,940	1,660	5,280	30,180	24,710	5,470
Other white oak	15,890	4,880	11,010	60,630	50,090	10,540
Other red oak	33,910	8,990	24,920	141,280	118,450	22,830
Hickories	18,560	8,910	9,650	57,280	46,910	10,370
Yellow birch	150	60	90	390	390	--
Hard maple	3,040	1,600	1,440	8,150	6,620	1,530
Beech	9,410	1,670	7,740	43,370	38,250	5,120
Black walnut	1,230	730	500	2,790	910	1,880
Ash	2,160	1,130	1,030	5,450	4,510	940
Soft maple	7,620	4,290	3,330	17,810	13,180	4,630
Sweetgum	1,950	820	1,130	6,730	5,370	1,360
Blackgum	4,170	1,600	2,570	14,700	11,750	2,950
Cottonwood	--	--	--	--	--	--
Yellow-poplar	17,690	7,990	9,700	52,470	39,560	12,910
Basswood	1,370	340	1,030	6,270	4,020	2,250
Other	5,910	3,470	2,440	13,010	10,170	2,840
Total hardwoods	152,660	59,020	93,640	526,260	428,490	97,770
All species	168,750	65,200	103,550	577,670	466,550	111,120

* International 1/4-inch rule.

Table 10. -- *Volume of growing stock and sawtimber on commercial-forest land by species and kind of material*
Southern Cumberland Unit, Kentucky, 1963 -- Continued

ESTILL COUNTY

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Softwoods:						
Shortleaf pine	3,190	1,400	1,790	9,840	7,540	2,300
Other yellow pines	4,310	1,920	2,390	11,910	8,280	3,630
White pine	20	20	--	--	--	--
Hemlock	400	110	290	1,500	1,280	220
Redcedar	160	80	80	280	240	40
Other	10	10	--	60	--	60
Total softwoods	8,090	3,540	4,550	23,590	17,340	6,250
Hardwoods:						
Select white oak	11,180	5,330	5,850	32,490	26,780	5,710
Select red oak	3,590	840	2,750	15,490	12,720	2,770
Other white oak	7,920	2,520	5,400	29,440	24,370	5,070
Other red oak	17,580	4,790	12,790	71,240	60,650	10,590
Hickories	9,850	4,610	5,240	28,420	23,660	4,760
Yellow birch	60	20	40	190	190	--
Hard maple	1,780	860	920	4,830	3,840	990
Beech	4,280	850	3,430	19,370	17,070	2,300
Black walnut	510	340	170	960	310	650
Ash	1,160	590	570	3,000	2,510	490
Soft maple	3,300	1,910	1,390	7,370	5,440	1,930
Sweetgum	970	470	500	2,670	2,130	540
Blackgum	1,940	630	1,310	7,070	5,810	1,260
Cottonwood	30	30	--	--	--	--
Yellow-poplar	11,710	4,470	7,240	34,830	28,220	6,610
Basswood	670	160	510	3,080	1,970	1,110
Other	2,720	1,560	1,160	6,030	4,500	1,530
Total hardwoods	79,250	29,980	49,270	266,480	220,170	46,310
All species	87,340	33,520	53,820	290,070	237,510	52,560

JACKSON COUNTY

Softwoods:						
Shortleaf pine	9,140	2,020	7,120	26,750	20,830	5,920
Other yellow pines	3,850	1,200	2,650	12,130	9,330	2,800
White pine	30	30	--	--	--	--
Hemlock	730	90	640	2,550	2,400	150
Redcedar	110	70	40	160	140	20
Other	80	30	50	350	--	350
Total softwoods	13,940	3,440	10,500	41,940	32,700	9,240
Hardwoods:						
Select white oak	18,120	9,780	8,340	40,620	34,090	6,530
Select red oak	4,440	1,000	3,440	17,530	14,590	2,940
Other white oak	11,280	5,430	5,850	35,480	29,620	5,860
Other red oak	32,680	10,900	21,780	93,690	81,620	12,070
Hickories	14,980	6,810	8,170	40,730	34,680	6,050
Yellow birch	60	30	30	140	140	--
Hard maple	1,410	760	650	4,040	3,420	620
Beech	3,500	840	2,660	14,810	12,700	2,110
Black walnut	600	340	260	1,260	410	850
Ash	1,200	610	590	3,110	2,500	610
Soft maple	4,260	2,570	1,690	9,060	6,880	2,180
Sweetgum	1,250	560	690	3,970	3,220	750
Blackgum	2,370	650	1,720	8,280	7,070	1,210
Cottonwood	--	--	--	--	--	--
Yellow-poplar	11,600	5,380	6,220	27,930	21,860	6,070
Basswood	730	170	560	2,930	1,790	1,140
Other	3,000	1,830	1,170	5,980	4,780	1,200
Total hardwoods	111,480	47,660	63,820	309,560	259,370	50,190
All species	125,420	51,100	74,320	351,500	292,070	59,430

* International 1 1/4-inch rule.

Table 10. -- *Volume of growing stock and sawtimber on commercial-forest land by species and kind of material*
Southern Cumberland Unit, Kentucky, 1963 -- Continued

KNOX COUNTY

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>
	<i>cu. ft.</i>	<i>cu. ft.</i>	<i>cu. ft.</i>	<i>bd. ft.*</i>	<i>bd. ft.*</i>	<i>bd. ft.*</i>
Softwoods:						
Shortleaf pine	4,050	1,890	2,160	12,160	9,410	2,750
Other yellow pines	4,340	1,430	2,910	14,600	10,330	4,270
White pine	50	50	--	--	--	--
Hemlock	360	60	300	1,640	1,420	220
Redcedar	180	130	50	190	160	30
Other	140	40	100	580	--	580
Total softwoods	9,120	3,600	5,520	29,170	21,320	7,850
Hardwoods:						
Select white oak	14,910	7,390	7,520	41,680	34,140	7,540
Select red oak	5,120	1,170	3,950	22,540	18,530	4,010
Other white oak	10,600	3,380	7,220	39,500	32,790	6,710
Other red oak	21,580	6,210	15,370	86,050	72,450	13,600
Hickories	13,600	6,670	6,930	40,850	33,340	7,510
Yellow birch	110	50	60	250	250	--
Hard maple	2,070	1,050	1,020	5,890	4,810	1,080
Beech	4,870	1,120	3,750	21,630	19,170	2,460
Black walnut	950	560	390	2,060	660	1,400
Ash	1,740	920	820	4,430	3,680	750
Soft maple	5,540	3,360	2,180	11,700	8,690	3,010
Sweetgum	1,420	660	760	4,260	3,420	840
Blackgum	2,450	920	1,530	8,670	6,960	1,710
Cottonwood	--	--	--	--	--	--
Yellow-poplar	13,670	6,580	7,090	37,910	28,720	9,190
Basswood	980	250	730	4,550	2,930	1,620
Other	3,870	2,440	1,430	7,630	5,970	1,660
Total hardwoods	103,480	42,730	60,750	339,600	276,510	63,090
All species	112,600	46,330	66,270	368,770	297,830	70,940

LAUREL COUNTY

Softwoods:						
Shortleaf pine	17,460	5,310	12,150	50,520	45,930	4,590
Other yellow pines	11,250	3,320	7,930	33,840	26,950	6,890
White pine	10	10	--	--	--	--
Hemlock	7,490	370	7,120	22,840	22,020	820
Redcedar	160	60	100	360	320	40
Other	--	--	--	--	--	--
Total softwoods	36,370	9,070	27,300	107,560	95,220	12,340
Hardwoods:						
Select white oak	20,690	10,190	10,500	52,870	45,010	7,860
Select red oak	3,430	690	2,740	14,010	11,870	2,140
Other white oak	8,310	2,300	6,010	27,430	23,090	4,340
Other red oak	24,280	6,760	17,520	91,430	78,370	13,060
Hickories	12,230	6,280	5,950	27,990	24,770	3,220
Yellow birch	70	--	70	300	300	--
Hard maple	1,620	830	790	4,300	3,520	780
Beech	3,750	450	3,300	17,020	15,210	1,810
Black walnut	490	390	100	520	280	240
Ash	840	500	340	1,910	1,690	220
Soft maple	4,650	1,650	3,000	15,120	11,480	3,640
Sweetgum	1,950	390	1,560	9,110	7,510	1,600
Blackgum	3,390	1,680	1,710	9,030	7,370	1,660
Cottonwood	--	--	--	--	--	--
Yellow-poplar	12,600	4,350	8,250	44,040	35,590	8,450
Basswood	670	200	470	2,650	1,860	790
Other	2,960	1,330	1,630	7,860	6,380	1,480
Total hardwoods	101,930	37,990	63,940	325,590	274,300	51,290
All species	138,300	47,060	91,240	433,150	369,520	63,630

* International 1/4-inch rule.

Table 10. -- *Volume of growing stock and sawtimber on commercial-forest land by species and kind of material*
Southern Cumberland Unit, Kentucky, 1963 -- Continued

LEE COUNTY

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>
	<i>cu. ft.</i>	<i>cu. ft.</i>	<i>cu. ft.</i>	<i>bd. ft.*</i>	<i>bd. ft.*</i>	<i>bd. ft.*</i>
Softwoods:						
Shortleaf pine	4,030	1,570	2,460	12,400	10,000	2,400
Other yellow pines	4,660	1,560	3,100	14,910	11,170	3,740
White pine	50	20	30	90	90	--
Hemlock	310	60	250	1,240	1,090	150
Redcedar	110	50	60	220	190	30
Other	40	10	30	170	--	170
Total softwoods	9,200	3,270	5,930	29,030	22,540	6,490
Hardwoods:						
Select white oak	9,400	4,740	4,660	24,190	19,840	4,350
Select red oak	2,950	720	2,230	12,170	10,230	1,940
Other white oak	6,580	2,360	4,220	23,280	19,640	3,640
Other red oak	15,780	4,400	11,380	61,170	52,420	8,750
Hickories	7,820	3,880	3,940	22,690	18,850	3,840
Yellow birch	50	20	30	130	130	--
Hard maple	1,030	530	500	2,740	2,230	510
Beech	2,820	560	2,260	12,840	11,370	1,470
Black walnut	480	260	220	1,120	360	760
Ash	860	470	390	2,120	1,750	370
Soft maple	3,390	1,830	1,560	8,230	6,120	2,110
Sweetgum	970	370	600	3,470	2,840	630
Blackgum	1,550	610	940	5,350	4,320	1,030
Cottonwood	--	--	--	--	--	--
Yellow-poplar	8,090	3,640	4,450	22,040	16,860	5,180
Basswood	580	150	430	2,480	1,650	830
Other	2,350	1,330	1,020	5,250	4,160	1,090
Total hardwoods	64,700	25,870	38,830	209,270	172,770	36,500
All species	73,900	29,140	44,760	238,300	195,310	42,990

McCREARY COUNTY

Softwoods:						
Shortleaf pine	48,440	7,080	41,360	142,690	133,010	9,680
Other yellow pines	19,300	6,040	13,260	48,040	42,270	5,770
White pine	60	30	30	100	100	--
Hemlock	7,120	1,360	5,760	22,610	21,470	1,140
Redcedar	120	60	60	220	190	30
Other	30	10	20	120	--	120
Total softwoods	75,070	14,580	60,490	213,780	197,040	16,740
Hardwoods:						
Select white oak	34,200	17,140	17,060	72,380	65,300	7,080
Select red oak	5,610	1,140	4,470	21,110	18,400	2,710
Other white oak	25,120	13,050	12,070	48,010	42,490	5,520
Other red oak	35,060	11,200	23,860	112,730	100,960	11,770
Hickories	24,480	9,630	14,850	66,150	59,100	7,050
Yellow birch	70	20	50	160	160	--
Hard maple	2,140	1,150	990	4,890	4,230	660
Beech	6,580	1,090	5,490	27,010	24,400	2,610
Black walnut	680	370	310	1,470	860	610
Ash	1,870	820	1,050	4,610	4,010	600
Soft maple	5,130	2,950	2,180	10,720	8,720	2,000
Sweetgum	2,110	790	1,320	5,620	5,020	600
Blackgum	4,060	840	3,220	13,830	11,790	2,040
Cottonwood	--	--	--	--	--	--
Yellow-poplar	18,560	7,000	11,560	53,020	47,270	5,750
Basswood	1,210	260	950	4,560	3,740	820
Other	3,610	1,910	1,700	7,800	6,270	1,530
Total hardwoods	170,490	69,360	101,130	454,070	402,720	51,350
All species	245,560	83,940	161,620	667,850	599,760	68,090

* International 1/4-inch rule.

Table 10. -- *Volume of growing stock and sawtimber on commercial-forest land by species and kind of material*
Southern Cumberland Unit, Kentucky, 1963 -- Continued

OWSLEY COUNTY

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>	<i>Thousand</i>
	<i>cu. ft.</i>	<i>cu. ft.</i>	<i>cu. ft.</i>	<i>bd. ft.*</i>	<i>bd. ft.*</i>	<i>bd. ft.*</i>
Softwoods:						
Shortleaf pine	2,940	980	1,960	8,630	7,040	1,590
Other yellow pines	1,770	870	900	4,290	2,860	1,430
White pine	30	30	--	--	--	--
Hemlock	210	40	170	1,030	840	190
Redcedar	110	70	40	150	130	20
Other	--	--	--	--	--	--
Total softwoods	5,060	1,990	3,070	14,100	10,870	3,230
Hardwoods:						
Select white oak	8,690	4,060	4,630	22,500	18,880	3,620
Select red oak	2,360	570	1,790	10,340	8,520	1,820
Other white oak	5,080	1,750	3,330	18,430	15,070	3,360
Other red oak	11,000	3,520	7,480	40,410	33,690	6,720
Hickories	6,100	2,940	3,160	18,730	15,530	3,200
Yellow birch	60	20	40	160	160	--
Hard maple	970	450	520	3,030	2,480	550
Beech	2,010	510	1,500	8,560	7,620	940
Black walnut	470	230	240	1,250	400	850
Ash	870	450	420	2,230	1,860	370
Soft maple	2,040	1,190	850	4,510	3,360	1,150
Sweetgum	470	220	250	1,370	1,100	270
Blackgum	1,210	410	800	4,570	3,720	850
Cottonwood	--	--	--	--	--	--
Yellow-poplar	6,870	3,520	3,350	17,710	13,490	4,220
Basswood	640	150	490	3,080	1,970	1,110
Other	1,950	1,160	790	3,950	3,050	860
Total hardwoods	50,790	21,150	29,640	160,830	130,940	29,890
All species	55,850	23,140	32,710	174,930	141,810	33,120

ROCKCASTLE COUNTY

Softwoods:						
Shortleaf pine	5,110	2,010	3,100	14,840	11,940	2,900
Other yellow pines	4,590	1,510	3,080	15,060	10,520	4,540
White pine	30	30	--	--	--	--
Hemlock	400	170	230	1,070	920	150
Redcedar	170	80	90	350	310	40
Other	60	20	40	230	--	230
Total softwoods	10,360	3,820	6,540	31,550	23,690	7,860
Hardwoods:						
Select white oak	15,340	7,650	7,690	40,630	33,350	7,280
Select red oak	4,440	1,070	3,370	18,410	15,390	3,020
Other white oak	10,530	3,230	7,300	39,640	32,860	6,780
Other red oak	21,270	5,630	15,640	86,070	72,760	13,310
Hickories	12,870	6,020	6,850	36,730	30,560	6,170
Yellow birch	50	20	30	110	110	--
Hard maple	1,790	990	800	4,500	3,650	850
Beech	5,870	1,100	4,770	26,280	23,160	3,120
Black walnut	690	400	290	1,380	590	790
Ash	1,110	590	520	2,740	2,270	470
Soft maple	4,540	2,780	1,760	9,140	6,760	2,380
Sweetgum	930	450	480	2,690	2,190	500
Blackgum	1,870	590	1,280	7,030	5,700	1,330
Cottonwood	--	--	--	--	--	--
Yellow-poplar	9,900	4,460	5,440	27,320	20,840	6,480
Basswood	580	210	370	2,290	1,460	830
Other	3,720	2,310	1,410	7,490	5,850	1,640
Total hardwoods	95,500	37,500	58,000	312,450	257,500	54,950
All species	105,860	41,320	64,540	344,000	281,190	62,810

* International 1/4-inch rule.

Table 10. -- *Volume of growing stock and sawtimber on commercial-forest land by species and kind of material*
Southern Cumberland Unit, Kentucky, 1963 -- Continued

WHITLEY COUNTY

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Softwoods:						
Shortleaf pine	16,360	4,110	12,250	49,130	43,710	5,420
Other yellow pines	10,290	3,790	6,500	28,550	22,300	6,250
White pine	40	40	--	--	--	--
Hemlock	2,250	390	1,860	7,770	7,290	480
Redcedar	260	130	130	450	380	70
Other	30	10	20	120	--	120
Total softwoods	29,230	8,470	20,760	86,020	73,680	12,340
Hardwoods:						
Select white oak	23,900	11,140	12,760	63,340	53,670	9,670
Select red oak	6,080	1,400	4,680	25,320	21,130	4,190
Other white oak	14,980	5,080	9,900	54,460	46,420	8,040
Other red oak	29,010	7,960	21,050	113,960	97,130	16,830
Hickories	17,870	8,120	9,750	52,920	44,990	7,930
Yellow birch	130	50	80	350	350	--
Hard maple	3,200	1,610	1,590	8,040	6,780	1,260
Beech	7,990	1,440	6,550	35,930	31,820	4,110
Black walnut	970	590	380	2,070	700	1,370
Ash	2,150	1,080	1,070	5,610	4,710	900
Soft maple	6,780	3,630	3,150	15,170	11,350	3,820
Sweetgum	1,820	700	1,120	5,970	5,010	960
Blackgum	3,930	1,210	2,720	14,040	11,790	2,250
Cottonwood	20	--	20	80	80	--
Yellow-poplar	17,010	6,750	10,260	50,140	38,930	11,210
Basswood	1,110	280	830	4,860	3,150	1,710
Other	4,940	2,730	2,210	11,390	9,110	2,280
Total hardwoods	141,890	53,770	88,120	463,650	387,120	76,530
All species	171,120	62,240	108,880	549,670	460,800	88,870

* International 1/4-inch rule.

Table 11. -- *Volume of growing stock trees on commercial-forest land by species and diameter class*
Southern Cumberland Unit, Kentucky, 1963

(In thousand cubic feet by diameter in inches)

Species	Total	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0 and larger
Softwoods:											
Shorleaf pine	129,820	10,850	23,850	26,250	23,400	20,970	15,500	6,140	1,780	880	200
Other yellow pines	84,570	10,220	18,460	21,240	13,560	12,680	5,790	1,460	730	340	90
White pine	510	--	450	--	--	30	--	--	--	--	30
Hemlock	21,280	1,390	1,850	2,050	1,400	1,510	2,260	2,340	2,210	2,060	4,210
Redcedar	2,230	830	350	610	440	--	--	--	--	--	--
Other	700	230	--	--	--	--	--	--	--	470	--
Total softwoods	239,110	23,520	44,960	50,150	38,800	35,190	23,550	9,940	4,720	3,750	4,530
Hardwoods:											
Select white oak	223,990	25,860	34,450	50,570	38,820	28,620	18,250	10,470	6,150	4,380	6,420
Select red oak	59,830	1,430	6,040	6,280	8,040	9,090	8,300	6,510	4,920	2,530	6,690
Other white oak	147,650	11,160	15,150	27,160	18,990	16,030	18,710	12,300	5,580	4,800	17,770
Other red oak	305,940	18,770	27,700	41,820	46,990	46,780	43,300	34,690	18,670	11,710	15,510
Hickories	177,310	19,780	32,790	29,870	26,250	21,760	13,990	12,130	5,530	6,030	9,180
Yellow birch	1,130	160	--	280	10	290	390	--	--	--	--
Hard maple	25,340	4,720	5,470	2,990	4,720	1,730	1,180	1,210	1,180	430	1,710
Beech	68,520	2,560	2,840	8,040	6,810	8,390	4,890	8,040	6,290	4,700	15,960
Black walnut	9,530	2,200	1,260	2,130	1,320	490	1,040	30	710	330	20
Ash	19,260	3,130	3,480	3,130	3,240	1,090	860	700	780	1,160	1,690
Soft maple	62,230	12,240	14,240	8,600	6,660	6,590	4,870	3,470	1,420	1,960	2,180
Sweetgum	17,260	2,360	1,760	2,960	3,520	1,490	1,720	1,170	890	340	1,050
Blackgum	33,970	2,850	2,450	6,170	3,850	5,040	6,730	3,990	1,650	510	730
Cottonwood	50	--	30	--	--	--	--	20	--	--	--
Yellow-poplar	163,570	17,920	25,990	26,690	27,450	20,060	17,210	12,030	7,570	4,030	4,620
Basswood	11,370	330	800	1,740	1,340	1,640	1,070	600	1,740	60	2,050
Other	47,150	10,230	7,880	9,100	6,790	2,240	4,800	3,610	2,070	210	220
Total hardwoods	1,374,100	135,700	182,330	227,530	204,800	171,330	147,310	110,970	65,150	43,180	85,800
All species	1,613,210	159,220	227,290	277,680	243,600	206,520	170,860	120,910	69,870	46,930	90,330

Table 12. -- Volume of sawtimber on commercial-forest land by species and diameter class
Southern Cumberland Unit, Kentucky, 1963

(In thousand board feet* by diameter in inches)

Species	Total	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0 and larger
Softwoods:									
Shortleaf pine	386,190	108,630	90,390	85,730	67,250	22,940	6,000	4,560	690
Other yellow pines	250,650	91,240	60,740	60,920	27,140	5,120	3,540	1,640	310
White pine	190	--	--	100	--	--	--	--	90
Hemlock	69,840	7,980	4,940	6,260	9,850	10,560	8,010	7,160	15,080
Redcedar	3,850	2,310	1,540	--	--	--	--	--	--
Other	2,980	--	--	--	--	--	--	2,980	--
Total softwoods	713,700	210,160	157,610	153,010	104,240	38,620	17,550	16,340	16,170
Hardwoods:									
Select white oak	579,840	--	187,790	148,240	96,830	55,430	32,060	22,970	36,520
Select red oak	252,000	--	39,340	48,770	44,330	35,160	29,640	14,190	40,570
Other white oak	496,750	--	85,700	82,310	100,850	66,520	28,310	26,970	106,090
Other red oak	1,156,970	--	220,340	248,160	229,570	196,430	106,890	67,840	87,740
Hickories	513,690	--	124,800	114,980	73,370	69,310	32,790	37,650	60,790
Yellow birch	2,910	--	50	1,080	1,780	--	--	--	--
Hard maple	67,470	--	25,410	9,240	7,040	7,020	6,960	2,490	9,310
Beech	304,230	--	36,820	41,150	25,350	44,760	34,300	27,040	94,810
Black walnut	20,860	--	6,940	2,260	5,110	920	3,770	1,780	80
Ash	49,730	--	14,500	6,260	3,990	2,840	4,710	7,150	10,280
Soft maple	141,350	--	30,660	32,430	24,820	18,320	8,700	11,320	15,100
Sweetgum	55,860	--	18,940	6,510	9,220	6,570	5,400	2,150	7,070
Blackgum	119,440	--	18,010	25,630	37,480	21,990	9,130	2,850	4,350
Cottonwood	80	--	--	--	--	80	--	--	--
Yellow-poplar	470,190	--	118,440	95,570	91,410	66,950	43,620	24,600	29,600
Basswood	49,770	--	6,550	8,970	6,360	3,430	10,320	280	13,860
Other	102,990	--	31,230	11,880	24,790	20,730	11,810	1,180	1,370
Total hardwoods	4,384,130	--	965,520	883,440	782,300	616,460	368,410	250,460	517,540
All species	5,097,830	210,160	1,123,130	1,036,450	886,540	655,080	385,960	266,800	533,710

* International 1/4-inch rule.

Table 13. -- *Net annual growth on commercial-forest land by species and kind of material*
Southern Cumberland Unit, Kentucky, 1963

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand</i> <i>cu. ft.</i>	<i>Thousand</i> <i>cu. ft.</i>	<i>Thousand</i> <i>cu. ft.</i>	<i>Thousand</i> <i>bd. ft.*</i>	<i>Thousand</i> <i>bd. ft.*</i>	<i>Thousand</i> <i>bd. ft.*</i>
Softwoods:						
Shortleaf pine	5,860	1,420	4,440	25,650	17,130	8,520
Other yellow pine	5,240	1,460	3,780	26,920	15,730	11,190
White pine	30	--	30	520	--	520
Hemlock	860	290	570	3,550	2,940	610
Redcedar	190	120	70	510	360	150
Other	40	30	10	40	--	40
Total softwoods	12,220	3,320	8,900	57,190	36,160	21,030
Hardwoods:						
Select white oak	9,010	4,030	4,980	45,750	31,230	14,520
Select red oak	2,240	890	1,350	11,370	8,600	2,770
Other white oak	5,570	2,390	3,180	25,170	20,200	4,970
Other red oak	10,160	3,340	6,820	55,610	38,090	17,520
Hickory	6,010	4,150	1,860	21,050	10,990	10,060
Yellow birch	50	20	30	330	330	--
Hard maple	1,250	880	370	3,160	2,400	760
Beech	1,470	400	1,070	9,430	6,960	2,470
Black walnut	540	370	170	2,230	730	1,500
Ash	1,060	630	430	3,700	2,330	1,370
Soft maple	3,150	2,110	1,040	9,500	6,060	3,440
Sweetgum	980	520	460	4,090	2,660	1,430
Blackgum	1,450	620	830	7,750	5,610	2,140
Cottonwood	--	--	--	†	--	--
Yellow-poplar	13,510	5,640	7,870	56,000	27,040	28,960
Basswood	340	110	230	2,120	1,360	760
Other	2,440	1,440	1,000	10,030	6,340	3,690
Total hardwoods	59,230	27,540	31,690	267,290	170,930	96,360
All species	71,450	30,860	40,590	324,480	207,090	117,390

* International 1/4-inch rule.

† Insignificant amount.

Table 14. -- *Net annual growth on commercial-forest land by county and species group*
Southern Cumberland Unit, Kentucky, 1963

County	Growing stock			Sawtimber		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
	<i>Thousand</i> <i>cu. ft.</i>	<i>Thousand</i> <i>cu. ft.</i>	<i>Thousand</i> <i>cu. ft.</i>	<i>Thousand</i> <i>bd. ft.*</i>	<i>Thousand</i> <i>bd. ft.*</i>	<i>Thousand</i> <i>bd. ft.*</i>
Bell	6,690	750	5,940	32,330	4,120	28,210
Breathitt	9,300	990	8,310	44,000	5,210	38,790
Clay	8,150	1,100	7,050	39,950	6,280	33,670
Estill	4,160	610	3,550	19,780	3,180	16,600
Jackson	4,910	640	4,270	19,500	2,640	16,860
Knox	5,730	600	5,130	25,890	3,280	22,610
Laurel	5,710	1,820	3,890	26,050	8,150	17,900
Lee	3,480	600	2,880	16,700	3,400	13,300
McCreary	8,120	2,690	5,430	29,710	8,980	20,730
Owsley	2,820	290	2,530	11,580	1,400	10,180
Rockcastle	4,850	640	4,210	24,090	3,530	20,560
Whitley	7,530	1,490	6,040	34,900	7,020	27,880
Total	71,450	12,220	59,230	324,480	57,190	267,290

* International 1/4-inch rule.

Table 15. -- *Timber cut from commercial-forest land by species and kind of material*
Southern Cumberland Unit, Kentucky, 1962

Species	Growing stock			Sawtimber
	Total	Poletimber trees	Sawtimber trees	Total
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>
Softwoods:				
Shortleaf pine	2,450	920	1,530	8,030
Other yellow pines	370	80	290	1,500
White pine	20	--	20	100
Hemlock	230	20	210	1,110
Redcedar	40	30	10	60
Other	--	--	--	--
Total softwoods	3,110	1,050	2,060	10,800
Hardwoods:				
Select white oak	1,730	180	1,550	9,750
Select red oak	2,130	120	2,010	13,140
Other white oak	1,270	180	1,090	7,100
Other red oak	1,190	200	990	6,350
Hickory	1,120	250	870	5,730
Yellow birch	--	--	--	--
Hard maple	560	180	380	2,570
Beech	1,510	220	1,290	8,840
Black walnut	150	--	150	1,060
Ash	410	180	230	1,470
Soft maple	210	10	200	1,300
Sweetgum	20	--	20	160
Blackgum	140	--	140	950
Cottonwood	10	10	--	10
Yellow-poplar	2,380	70	2,310	15,830
Basswood	540	20	520	3,450
Other	380	30	350	2,270
Total hardwoods	13,750	1,650	12,100	79,980
All species	16,860	2,700	14,160	90,780

* International 1/4-inch rule.

Table 16. -- *Timber cut from commercial-forest land by ownership and species group*
Southern Cumberland Unit, Kentucky, 1962

Ownership class	Growing stock			Sawtimber		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
National Forest	2,430	1,270	1,160	13,080	5,840	7,240
Other public	150	10	140	970	30	940
Forest industry	310	--	310	2,000	--	2,000
Farmer and miscellaneous private	13,970	1,830	12,140	74,730	4,930	69,800
All ownerships	16,860	3,110	13,750	90,780	10,800	79,980

* International 1/4-inch rule.

Table 17. --*Net annual desirable cut on commercial-forest land by species and kind of material*
Southern Cumberland Unit, Kentucky, 1963

Species	Growing stock			Sawtimber		
	Total	Poletimber trees	Sawtimber trees	Total	In sawtimber stands	In other stands
	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Softwoods:						
Shortleaf pine	2,490	420	2,070	9,930	8,790	1,140
Other yellow pines	1,080	340	740	3,430	2,970	460
White pine	--	--	--	20	20	--
Hemlock	580	90	490	2,530	2,470	60
Redcedar	10	--	10	20	20	--
Other	--	--	--	--	--	--
Total softwoods	4,160	850	3,310	15,930	14,270	1,660
Hardwoods:						
Select white oak	3,320	1,320	2,000	8,960	7,430	1,530
Select red oak	960	170	790	4,150	3,870	280
Other white oak	4,190	730	3,460	17,010	15,030	1,980
Other red oak	7,880	1,580	6,300	33,530	27,150	6,380
Hickories	3,390	1,170	2,220	12,050	10,110	1,940
Yellow birch	20	--	20	110	110	--
Hard maple	440	80	360	1,930	1,160	770
Beech	900	150	750	4,500	4,110	390
Black walnut	40	10	30	110	110	--
Ash	130	20	110	520	510	10
Soft maple	1,030	460	570	2,870	1,990	880
Sweetgum	530	190	340	1,900	930	970
Blackgum	770	250	520	2,950	2,470	480
Cottonwood	--	--	--	--	--	--
Yellow-poplar	2,250	520	1,730	8,400	8,150	250
Basswood	140	40	100	530	520	10
Other	600	270	330	1,530	1,310	220
Total hardwoods	26,590	6,960	19,630	101,050	84,960	16,090
All species	30,750	7,810	22,940	116,980	99,230	17,750

* International 1/4-inch rule.

Table 18. --*Net annual desirable cut on commercial-forest land by county and species group*
Southern Cumberland Unit, Kentucky, 1963

County	Growing stock			Sawtimber		
	All species	Softwoods	Hardwoods	All Species	Softwoods	Hardwoods
	<i>Thousand cu. ft.</i>	<i>Thousandm cu. ft.</i>	<i>Thousand cu. ft.</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>	<i>Thousand bd. ft.*</i>
Bell	2,510	140	2,370	9,760	490	9,270
Breathitt	3,500	180	3,320	13,720	620	13,100
Clay	3,080	190	2,890	12,250	670	11,580
Estill	1,590	100	1,490	6,200	310	5,890
Jackson	2,200	200	2,000	7,850	820	7,030
Knox	2,070	110	1,960	7,850	380	7,470
Laurel	2,560	610	1,950	9,780	2,250	7,530
Lee	1,340	130	1,210	5,080	430	4,650
McCreary	5,580	1,760	3,820	20,340	7,230	13,110
Owsley	1,020	70	950	3,810	240	3,570
Rockcastle	1,930	130	1,800	7,420	450	6,970
Whitley	3,370	540	2,830	12,920	2,040	10,880
Total	30,750	4,160	26,590	116,980	15,930	101,050

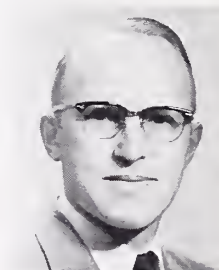
* International 1/4-inch rule.

THE AUTHORS



DAVID A. GANSNER began his Forest Service career in 1958 at the Lake States Forest Experiment Station, working on the Forest Survey in Missouri and Minnesota. In 1961 he moved to the Central States Station and his present job as Forest Survey Representative. A native of Missouri, Dave received his degree in forestry from the University of Missouri. He is a member of the Society of American Foresters and Xi Sigma Pi (honorary forestry society).

CLARENCE D. CHASE is a veteran of 12 years administrative experience on the National Forests plus 20 years in charge of Forest Survey at the Lake States Forest Experiment Station. Since 1956 he also has planned and supervised the Forest Survey of the Central States. Chase holds a Bachelor of Forestry degree from the University of Minnesota, his native state, and a Master of Forestry degree from Iowa State University. He is a member of the Society of American Foresters, the American Society of Photogrammetry, and Xi Sigma Pi (honorary forestry society).



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